PIONEER®
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Service Manual

• KEH-M780/US

ORDER NO.
CRT1509

MULTI-CD CONTROL FM/AM TUNER DECK AMPLIFIER

KEH-M780 US
KEH-M8500 US
KEH-M8550 ES

NOTE:

- **See the separate manual CX-529 (CRT1507) for the cassette mechanism description.**
- **Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double -D symbol are trademarks of Dolby Laboratories Licensing Corporation.**

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SAFETY INFORMATION (US MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SPECIFICATIONS

●KEH-M780/US

General

Power Source ..... 14.4 V DC (10.8—15.6 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 7 A
Dimensions (chassis) ..... 178 (W) × 50 (H) × 150 (D) mm
[7(W)×2(H)×5-7/8(D)in.]
(front face) ..... 170 (W) × 46 (H) × 18 (D) mm
[6-3/4(W)×1-3/4(H)×3/4(D)in.]
Weight ..... 1.6 kg(3.5lbs.)

Amplifier

Continuous power output is 14 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 30 W × 4 (EIAJ)
Load impedance ..... 4Ω (4—8Ω allowable)
Tone controls (bass) ..... ±12 dB (100 Hz)
(middle) ..... ±12 dB (1kHz)
(treble) ..... ±12 dB (10 kHz)
Loudness contour ..... +12 dB (100 Hz), +7 dB (10 kHz)
(volume: –30 dB)
Nominal output level/
output impedance (pre out) 500 mV/1kΩ

Sub-woofer

Crossover frequency ..... 50 Hz/80 Hz/120 Hz
Crossover slope ..... –12 dB/octave
Output gain ..... –21 — +9 dB

Tape player

Tape ..... Compact cassette tape (C-30—C-90)
Tape speed ..... 4.76cm/sec. (+0.14cm/sec., -0.05cm/sec.)
Fast forward/rewind time ..... Approx. 100 sec. for C-60
Wow & Flutter ..... 0.09% (WRMS)
Frequency response ..... Metal: 30—19,000 Hz (±3 dB)
Stereo separation ..... 45 dB
Signal-to-noise ratio ..... Metal: Dolby C NR IN: 73 dB (IHF-A network)
Dolby B NR IN: 67 dB (IHF-A network)
Dolby NR OUT: 61 dB (IHF-A network)

FM-Tuner

Frequency range	87.9—107.9 MHz
Usable sensitivity	8 dBf (0.7μV/75Ω, mono)
50 dB quieting sensitivity	13 dBf (1.2μV/75Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3%(at 65dBf, 1kHz, stereo)
Frequency response	30—15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Three-signal intermodulation (desire signal level)	50 dBf (two undesire signal level: 110 dBf)

AM-Tuner

Frequency range	530 — 1,710 kHz
Usable sensitivity	18μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

2. USING THE REMOVABLE FRONT PANEL

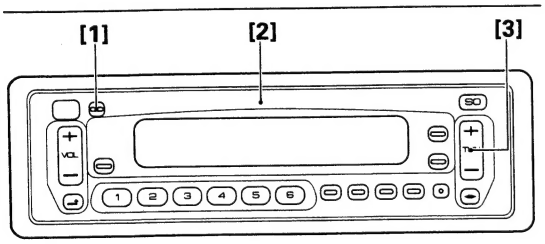


Fig.1

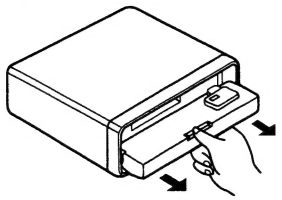
Parts Identification (Fig. 1)

[1] Open button
[2] Front panel
[3] Buzzer ON/OFF

The front panel of this unit can be removed to prevent theft. Also, to prevent forgetting to remove the front panel, 5 seconds after the ignition is turned off, if the front panel is still attached, a buzzer will sound for a few seconds.
If you wish to cancel the sound of the buzzer, please do as follows.
Keep the minus side (–) of button [3] depressed and turn the vehicle's ignition key from OFF to ON. By repeating this procedure, the sound of the buzzer will be restored.

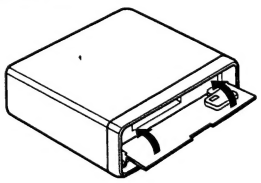
Detaching the Front Panel

1. Press button [1] to open the front panel.
2. While holding down the lock button, pull the front panel toward you.



- *Take care not to put pressure on the display or drop the front panel.*

3. Close the inner lid.

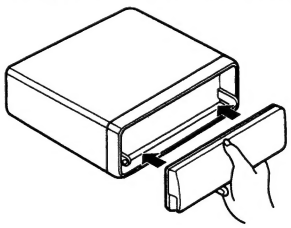


- *Always keep the inner lid closed while the front panel is out, otherwise dirt or dust may get into from the cassette slot, causing malfunctions.*

4. Enclose for safekeeping the front panel that is removed in the supplied protective case.

Replacing the Front Panel

1. Make sure the inner lid is closed.
2. Push the front panel into the main body.



- *When replacing the front panel, do not put pressure on the display or control buttons.*

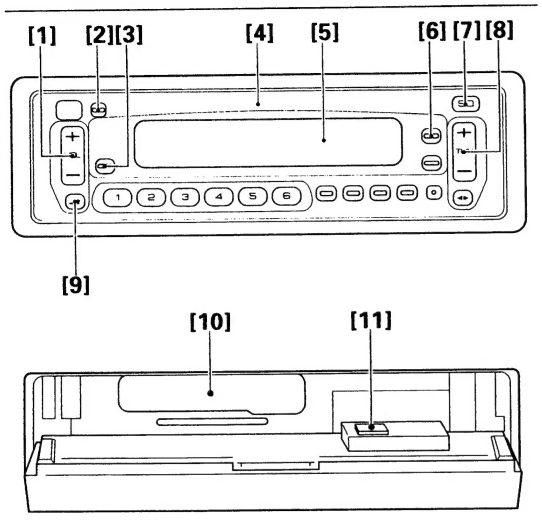


Fig.2

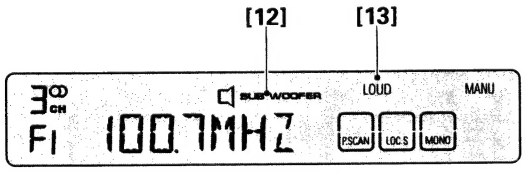


Fig.3

Parts Identification (Fig. 2)

[1] Volume/Audio adjustment
[2] Open
[3] Loudness
[4] Front panel
[5] Display
[6] Illumination switch
[7] Source selector
[8] Frequency selector
[9] Shift
[10] Cassette slot
[11] Eject

(Fig. 3)

[12] Sub-woofer
[13] Loudness

Switching Power On

Tuner

Press button [7] to switch the tuner power on. Press button [7] again to switch the power off.

Tape

Press button [2] to open the front panel, and load a cassette in through cassette slot [10]. The cassette will play. To eject the cassette, press button [2] to open the front panel and press button [11].

Source Selector

When a cassette is loaded and button [7] is pressed, the source shifts in the order tape → tuner → power off. If this unit is combined with a multi-play CD player sold separately such as CDX-M33, the source shifts in the order multi-play CD player → tape → tuner → power off.

Note:

- None of the operation buttons except button [11] work while the front panel is open. Use the control buttons after shutting the front panel.

Adjusting Audio

Press button [1] to adjust the volume. Each press of button [9] changes the display and the function of button [1] as follows:
Volume → Fader 1 → Fader 2 → Bass → Middle → Treble → Balance

Adjusting Volume

Pressing the (+) side of button [1] increases the volume, while the (–) side decreases it.
(Display shows "**VOL00**" — "**VOL30**".)

- *While driving, keep the volume low enough that you can hear sounds from outside the vehicle.*

Adjusting the Fader

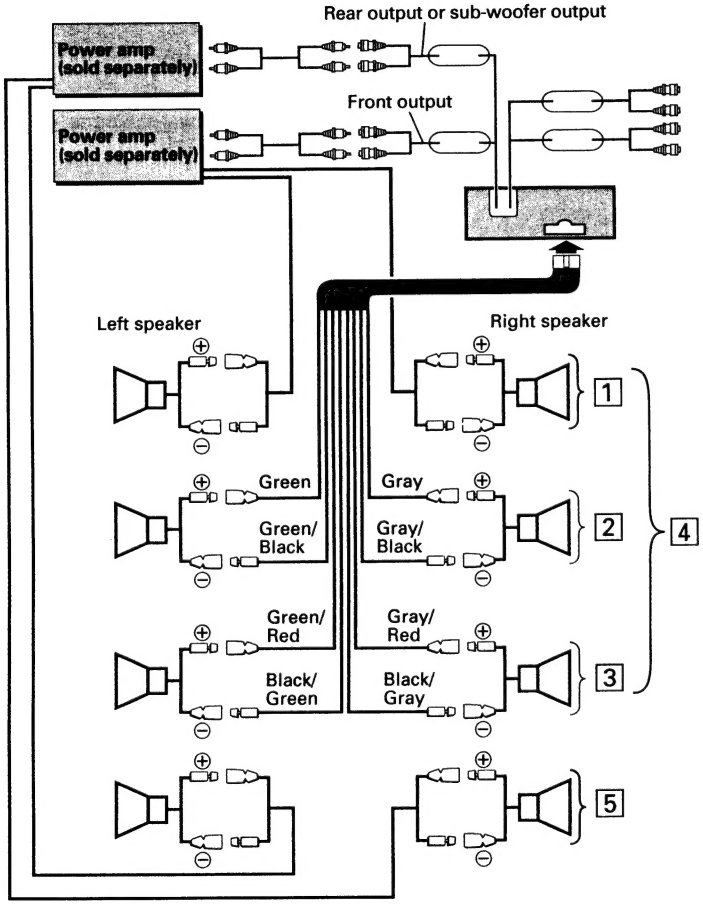
This unit has two faders. Fader 1 (displayed as "**FAD 1**") adjusts this unit's built-in amp's front and rear output.
Fader 2 (displayed as "**FAD 2**") adjusts the built-in amp's overall output as well as front pre-out and rear pre-out output.

- When combining this unit with a graphic equalizer, the fader adjustment is carried out on the graphic equalizer. For details on how to adjust Fader 1 and Fader 2 in this situation, see "Combining this unit with a graphic equalizer" in the next item.
- When the sub-woofer function is used, the Fader 2 function does not work. (See "Using the Sub-woofer" on the next item.)
- For details on Speakers [1] – [5] as mentioned in the explanation of Fader 1 and Fader 2, see the wiring diagram on the next item.

Fader 1
Pressing the (+) side of button [1] decreases the volume from Speaker [3] and pressing the (–) side decreases the volume from Speaker [2]. (Display shows "**FAD1 F9**" — "**FAD1 R9**".)
Fader 2
Pressing the (+) side of button [1] decreases the volume from Speaker [5] and pressing the (–) side decreases the volume from Speaker [4]. (Display shows "**FAD2 F9**"— "**FAD2 R9**".)

Notes:

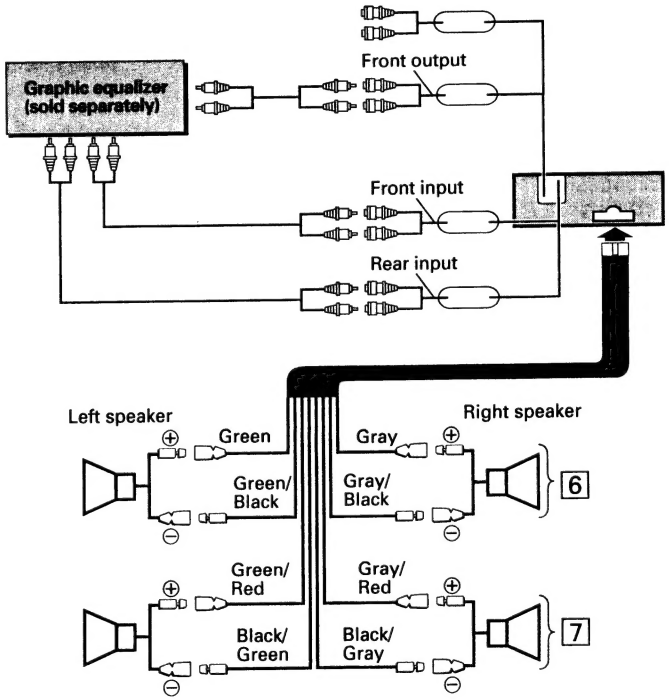
- When either Speaker [2] or Speaker [3] is not connected, set Fader 1 to its center position, "**FAD1 0.**" Adjust the Speaker [4] and Speaker [5] output with Fader 2.
- When Speaker [5] is not connected, set Fader 2 to its center position, "**FAD2 0**". Adjust the Speaker [2] and Speaker [3] output with Fader 1.



- For details on connecting this unit and a power amplifier, see "Connections" on page 15.

Combining this unit with a graphic equalizer

Set this unit's Fader 1 and Fader 2 to **"FAD1 0"** and **"FAD2 0"**. Adjust the output from Speaker [6] and Speaker [7] with the graphic equalizer, not with this unit.



- For details on connecting this unit and a graphic equalizer, see "Connections" on page 15.
- When you connect this unit with a graphic equalizer, you must switch the "MAIN IN" switch on the bottom of this unit. Refer to the "Carry out the following before connections and installation" on page 15.

Adjusting Bass
Pressing the (+) side of button [1] increases bass, while the (–) side decreases bass.
(Display shows **"BAS–6"** — **"BAS +6"**.)

Adjusting Middle
Pressing the (+) side of button [1] increases middle, while the (–) side decreases middle.
(Display shows **"MID–6"** — **"MID+6"**.)

Adjusting Treble
Pressing the (+) side of button [1] increases treble, while the (–) side decreases treble.
(Display shows **"TRE–6"** — **"TRE+6"**.)

Adjusting Balance
Pressing (+) side of button [1] shifts the balance to the left speaker, while the (–) side shifts it to the right speaker.
(Display shows **"BAL L9"** — **"BAL R9"**.)

- When you're adjusting fader, bass, middle, treble, or balance settings, the indicator will stop at the center setting. About 5 seconds after adjustment has been made, the display returns to its previous state.

Using the Sub-woofer
This unit's rear pre-out output terminals can also be used as sub-woofer output terminals. (For details on wiring, see "Connections" on page **15.**) When using these terminals as sub-woofer output terminals, carry out the following operations.

- When the sub-woofer function is used, the Fader 2 function does not work. When button [9] in the previous item is pressed, the display moves to the next step in the sequence: Volume → Fader 1 → Sub-woofer → Bass → Middle → Treble → Balance. (In other words, the Sub-woofer display replaces the Fader 2 display.)

Using the sub-woofer function
1. Press button [9] repeatedly to switch to the Fader 2 display (**"FAD2 F9"** — **"FAD2 R9"**).
2. When you hold down button [9] for at least 2 seconds, **"SUB. WOOFER"** [12] lights up and the sub-woofer function comes on. The display switches to the sub-woofer display for about 5 seconds (displaying the frequency and output level **"80HZ 0"**).
3. To end the sub-woofer function, press button [9] repeatedly to switch to the sub-woofer display. Holding down button [9] for at least 2 seconds while the sub-woofer is being displayed ends the sub-woofer function.

Frequency and output level adjustment
1. Press the button [9] repeatedly to switch to the sub-woofer display. (For about 5 seconds, the display shows the frequency and output level **"80HZ 0"**.)
2. While the sub-woofer display is shown, adjust the frequency and output level. Pressing the (+) or (–) side of button [8] raises or lowers the frequency. Pressing the (+) or (–) side of button [1] raises or lowers the output level. The frequency can be set to 50 Hz, 80 Hz, or 120 Hz. The output level can be set within the range from –6 to 6.

Using Source Level Adjuster
You may wish to adjust volume when you have changed the source to radio, tape, or CD or when you have changed the radio band from FM to AM. You can do so on the basis of the volume of FM as follows:

1. Use the button [7] to change the source. (In case of radio, change the band to AM.)
2. Hold down the button [9] for about 2 seconds, and the display will show you the volume of the source. (Display shows **"V–4"** — **"V+4"**.)
3. Pressing the (+) side of button [1] raises the volume and pressing the (–) side lowers it. About 5 seconds after the completion of the adjustment, the display returns to whatever it was showing before the adjustment.

- No adjustment can be made when an FM station is tuned in.

Using the Loudness Function
Press button [3] and the **"LOUD"** [13] will appear on the display. This "loudness" function enhances both the high and low ranges of sound to give even more power to output even at low volumes.

Switching Illumination Colour
Pressing button [6] toggles the illumination colour between green and amber.

Regarding the Cellular Telephone Muting
When the audio mute terminal of a cellular telephone is connected to the cellular mute terminal of the unit, the following function becomes active.
When a phone call is received or made on the cellular telephone, the volume is automatically lowered by the unit, and **"CALL"** is shown on the display.
When a call is ended, the volume returns to the previous level and the previous display is shown again.

- When the volume is lowered by the operation of the cellular telephone muting function (**"CALL"** is shown on the display), the unit's shift Button [9] and the attenuator button of the remote controller unit are disabled.

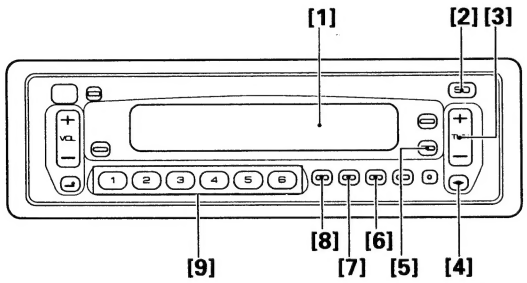


Fig.4

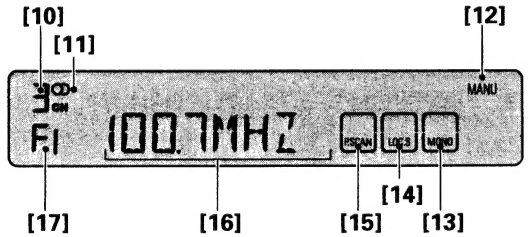


Fig.5

Parts Identification (Fig. 4)

[1] Display
[2] Source Selector
[3] Tuning/Local Seek Sensitivity/Seek, Manual
[4] Band
[5] Best Stations Memory (BSM)
[6] FM Stereo/Mono
[7] Local Station
[8] Preset Scan
[9] Preset

(Fig. 5)

[10] Preset Number
[11] FM Stereo
[12] Manual
[13] FM Mono
[14] Local Station
[15] Preset Scan
[16] Frequency
[17] Band

Listening to the Radio

- Electronic Tuner
  Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocations for North America. Use in other areas may result in improper reception of AM.

1. Press button [2] to switch the radio power on.
Press button [2] to switch the tuner on and off.
Operations will be different when the unit is combined with a separately available multi-play CD player (CDX-M33, etc.). For details on "Switching Power ON" refer to the relevant clause, on page 4.

2. Press button [4] to select a band.

F I → F II → F III → A
(FM1) (FM2) (FM3) (AM)

3. Use seek tuning to tune in a frequency.
Ensure that **"MANU"** [12] is not indicated on the display. (If so, turn it off by simultaneously pressing the (+) and the (–) sides of button [3].)
Press either the (+) side or the (–) side of button [3].
When the (+) side is pressed, the tuner will automatically receive high frequencies.
When the (–) side is pressed, it will automatically receive low frequencies.

4. Adjust volume and tone (see page 4).

5. Assign the tuned frequency to one of the buttons in Bank [9] (preset memory).
Press and hold down one of the button in Bank [9] for at least 2 seconds. The frequency is assigned to the selected button when the preset number [10] stops flashing on the display. Up to 18 FM stations (6 each for FM1, FM2 and FM3), and 6 AM stations can be assigned to the preset memory buttons in Bank [9].

6. Once a frequency is assigned to a button in Bank [9], you just need to press that button to tune it in.
This also causes the number of the button pressed to appear at position [10] on the display.

BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in Bank [9] , from strongest to weakest. It comes in handy when trying to find local stations while driving .

1. Press button [4] and select a band.
2. Hold down button [5]. After about 2 seconds, a "beep" will sound to signal that the BSM search has started. At this time, **"BSM"** will flash on the display.
3. The frequency display will return once BSM search is complete, and frequencies are assigned to buttons 1 through 6 in Bank [9].

- At the end of the BSM search, the displayed frequency is that assigned to button "1" of Bank [9].
- If there are fewer than six strong stations in the area, some of the buttons in Bank [9] will not be assigned frequencies, so they will retain any frequencies assigned to them previously.
- BSM search may take as long as 30 seconds in areas where there are few strong stations.
- You can cancel BSM search by pressing button [5] again.

Preset Scan Tuning

This function lets you automatically monitor the stations assigned to the preset buttons.

1. Press button [8]. The preset scan frame [15] lights up and the preset number [10] blinks. The broadcast stations stored with button [9] that are being received are called out one after another for 8 seconds each.
2. When you hear a station that you like, press button [8] again to cancel preset scan tuning and remain at that station.

Adjusting Seek Sensitivity

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has four seek tuning sensitivity levels for FM and 2 levels for AM to match local conditions.

Changing the Local Seek Sensitivity

1. Use button [4] to select a band.
2. Hold down the button [7] for more than 2 seconds, and the display will show you the current local seek sensitivity for about 5 seconds.(Example: LOC-2)
3. While the local seek sensitivity remains on the display, press the (+) side of button [3] to increase the sensitivity level, and the (–) side to decrease the level as shown below.
   FM : LOC-1 ⇄ LOC-2 ⇄ LOC-3 ⇄ LOC-4
   AM : LOC-1 ⇄ LOC-2
   The LOC-4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.

- The display of local seek sensitivity returns to the frequency when about 5 seconds have elapsed after the change of sensitivity.

Switching between Local and DX

Press button [7] to switch between Local and DX (distant) seek tuning. When the frame of local seek [14] is lit, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

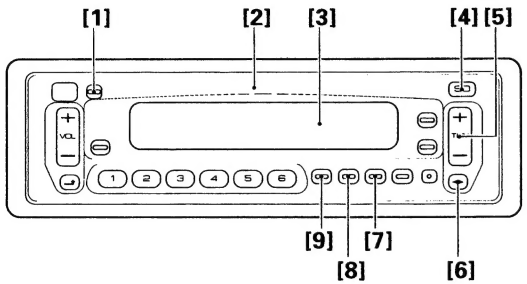
Manual Tuning

Use manual tuning when stations are too weak to be picked up by seek tuning.

1. Turn on "**MANU**" [12] by simultaneously pressing the (+) side and the (–) side of button [3].
2. Each press of the (+) side of button [3] increases the frequency in 0.2 MHz steps in the FM band, 10kHz in the AM band. Pressing the (–) side of button [3] decreases the frequency. Holding down either side of button [3] changes the frequency at high speed.

Switching between FM Stereo and Mono

Generally, it is best to allow the "Super Tuner" function to automatically set the optimum listening conditions. "◌" [11] turns on during stereo broadcast is in reception. When there is a large amount of noise, you can press button [6] for clearer mono reception (The frame of FM mono [13] turns on).



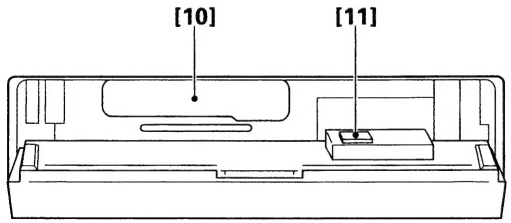


Fig.6

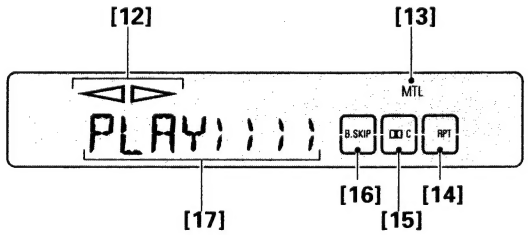


Fig.7

Parts Identification (Fig. 6)

[1] Open
[2] Front panel
[3] Display
[4] Source selector
[5] Fast forward, Rewind/Music search
[6] Direction change/Release
[7] Repeat
[8] Dolby B and C NR
[9] Blank skip
[10] Cassette slot
[11] Eject

(Fig. 7)

[12] Direction
[13] Metal
[14] Repeat
[15] Dolby B and C NR
[16] Blank skip
[17] Tape play

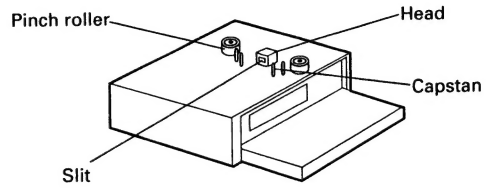
About cassette tapes

- Do not use tapes longer than C-90-type (90 min.) cassettes. Longer tapes can interfere with tape transport.
- Storing cassettes in areas directly exposed to sunlight or high temperatures can distort them and subsequently interfere with tape transport.

- Store unused tapes in a tape case where there is no danger of them becoming loose or being exposed to dust.

Cleaning the head

If the playback head becomes dirty, sound quality will suffer. Periodically (once or twice a month) clean the head with a cotton swab soaked with alcohol.



Listening to a tape

1. **Press button [1] to open the front panel.**
2. **Load a cassette in through the cassette slot [10]. The cassette will play.**

Tape play [17] and direction [12] appear.

- Do not take out the cassette while it is being loaded. If taken out forcibly, a cassette cannot be loaded later. If a cassette cannot be loaded, hold button [11] depressed and load the cassette again.

3. **Close the front panel and adjust volume and tone (see page 4).**
4. **To stop play halfway, press button [4] to switch the function off.**

To restart play, press button [4] some times until PLAY [17] appears on the display. The tape begins playing at the position where it stopped.

5. **To eject the cassette, press button [1] to open the front panel and press button [11].**

- Power is automatically turned off when the cassette tape has not been set within a few seconds. When this happens, remove the tape by pressing the button [11] because of a possible trouble with the tape.
- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.

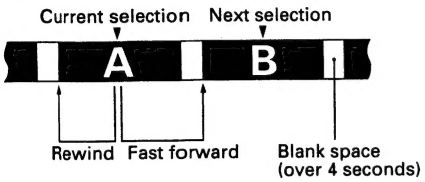
Changing Program

Press the button [6] to change the side of tape from A to B or vice versa.

Using Fast Forward and Rewind

1. To fast forward tape, press the (+) side of the button [5].
   (Display shows **"FF"**.)
   To rewind tape, press the (–) side.
   (Display shows **"REW"**.)
2. To release the fast forward or rewind function, press the button [6].

Using Music Search



1. To repeat the current selection (A), press the (–) side of the button [5] two consecutive times.
   (Display shows **"R-MS"**.)
   To hear the following piece of music (B) rather than continue the current selection, press the (+) side of the button [5] two consecutive times.
   (Display shows **"F-MS"**.)
   Pressing the button [5] three consecutive times makes the normal sequence of playing resume.
2. To release the music search function, press the button [6].

The following errors will cause the music search function to operate improperly, even though the unit is not malfunctioning.

- Unrecorded blank portion between selection is less than 4 seconds — the blank portion cannot be detected by the unit.
- Pauses in recorded conversations are longer than 4 seconds — the unit reads these as blanks between selections.
- Portions are recorded at very low volume for more than 4 seconds — the unit reads these as blanks between selections.

Dolby B and C NR

Press button [8] to listen to a cassette recorded using the Dolby NR system. Each press of button [8] shifts the Dolby NR mode as follows:
Dolby B NR ("DOLBY B" [15] appears) → Dolby C NR ("DOLBY C" [15] appears) → Dolby NR off.

- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol ⧈ are trademarks of Dolby Laboratories Licensing Corporation.

Auto Tape Selector

When a cassette tape is inserted, the automatic tape selector determines the tape type, and switches between 70 µs and 120 µs equalization. When it is a metal or chrome tape, **"MTL"** [13] comes on. When it is a normal tape, nothing comes on.

Using the blank skip function

Automatically carriers out fast forward to the start of the next selection when there is a blank area of 10 seconds or more between selections.

1. Press button [9] and frame [16] will light. The unit will now carry out fast forward to the start of the next selection when there is a blank area of 10 seconds or more between selections.
2. To release the blank skip function, press button [9] again.

Using the Music Repeat Function

Lets you listen to the same selection repeatedly.

1. When you want to listen to the same selection repeatedly, press button [7] and frame [14] will light.
2. To release the music repeat function, press button [7] again or press button [6].

Precautions When Using the Multi-Play CD Control

- This model can be used as controller when an optionally available multi-play CD player (e.g., CDX-M33) is included in the system. Programmed play does not operate when used with the multi-play CD player CDX-M70 or CDX-M100.
- See pages **11 through 14** for details on operation procedures.
- The Owner's Manual for the multi-play CD player does not contain an explanation of the CD controls for this unit. Read this Owner's Manual for details on proper operation and keep it handy for later reference.
- Immediately after the multi-play CD player is connected to the system, it may not operate properly (i.e. the system will not enter the multi-play CD player mode when you press the source selector button). In this case, press the clear button of the main unit and the clear button of the multi-play CD player, and attempt operation again.

Listening to the Compact Disc

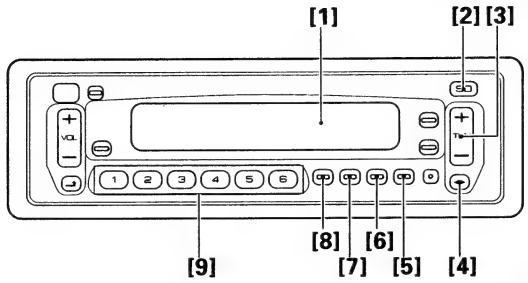


Fig. 8

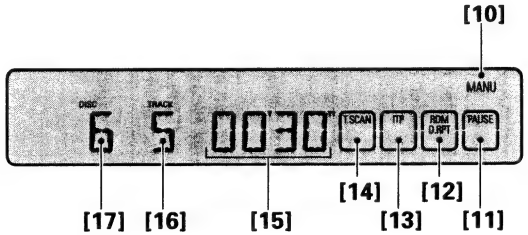


Fig. 9

Parts Identification (Fig. 8)

[1] Display
[2] Source Selector
[3] Track Number Search/Fast Forward, Reverse
[4] Program Clear
[5] Pause
[6] Mode
[7] ITP (Instant Track Program)
[8] Highlight Scan
[9] Disc Number Search

(Fig. 9)

[10] Manual
[11] Pause
[12] Music Repeat/Random Play/Disc Repeat
[13] ITP (Instant Track Program)
[14] Highlight Scan
[15] Play Time
[16] Track Number
[17] Disc Number

1. **Press button [2] to change the display to the Multi-Play CD Player mode and to begin disc play.**

Disc number [17], track number [16] and play time [15] will light. Each press of button [2] changes the mode as follows:
Multi-Play CD Player → Tape → Tuner → OFF

2. **Use the Disc Number Search function to select a disc.**

At the [9] button, press the disc number of the disc you wish to play. When the button is pressed, the selected disc number is displayed at [17] on the display and the playing starts.

- If pressing the [9] button has no effect (the pressed number is not displayed at [17]), check if there is a disc at that number.

3. **Adjust volume and tone. (See page 4.)**
4. **To stop disc play, press button [2].**

If you switch to the Multi-Play CD Player mode again, the normal play resumes from about where it stopped.

- If you stopped operating a Multi-Play CD Player CDX-M100 in the middle of music and then restarted, the player resumes playing from the very beginning of the selection with which you stopped.

Note:

- It takes about 30 seconds from setting the magazine in the multi-CD player till the start of CD playback. (During this time, **"READY"** blinks on the display.)
  This does not indicate a problem; it is just for verifying there a disc in the magazine.
- After you press a Button in Bank [9], it may take some time before play begins due to the time necessary to load and set the disc in the mechanism.
- The display counts down the number of seconds between tracks if the spacing is rather large (–02, –01).

Error Mode

Should an abnormality occur — for example, Multi-Play CD Player cannot be operated, or the music stops during CD playback — the main unit will indicate an error mode.
While it the unit is in error mode, a number will be displayed indicating the cause of the error, so please check the items listed below. If you cannot fix the problem after checking the cause of the error, please contact your dealer or your nearest Pioneer service center.

Note:
When using the Multi-Play CD Player, CDX-M100, CDX-M70, CDX-M50 and CDX-M40, an error will be displayed only in the form of "ERROR-00", without the number which indicated the cause of the error. When this display appears, please check items 11, 12, 14, or 30 listed below.

HEAT indicator

To prevent deterioration in the semi-conductor laser from overheating, playback of a CD will stop when the temperature surrounding the Multi-Play CD Player rise during play.
When this occurs, **"HEAT"** will be indicated on the display. Please wait until the temperature drops.

- This function refers to the Multi-Play CD Player CDX-M100. It does not refer to other Multi-Play CD Players.

Display	Cause	Treatment
11, 12	Dirt or a scratch on the disc stops the laser beam from being able to focus.	Wipe the dirt off the disc. Exchange the disc if it is scratched.
	The disc has been inserted upside down.	Confirm that the disc has been inserted right side up.
14	The disc has been inserted upside down.	Confirm that the disc has been inserted right side up.
	An unrecorded one-time-recordable compact disc (CD-R) is being used.	When you use a CD-R, load one that has been recorded on.
30	Dirt or a scratch on the disc hinders the track number search function.	Wipe the dirt off the disc. Exchange the disc if it is scratched.
80	An empty magazine is loaded in the multi-play CD player.	Insert a disc in the magazine.
10, 12, 50, 60, 70, A0	Electrical or mechanical system fault.	Turn the car ignition switch OFF, then ON again, or change to other sources except CD playback , and then to CD playback again. If the error indication does not disappear, contact your dealer or your nearest Pioneer service station.

- When error numbers not mentioned above are indicated, refer to the owner's manual accompanying the multi-play CD player.

Track Number Search

The desired track on the disc currently being played can be selected by track (or song) number.

1. Ensure that "**MANU**" [10] is not indicated on the display. If so, turn it off by simultaneously pressing the (+) side and the (–) side of button [3].
2. Use the button [3] to select a track. Pressing the (+) side increases the track number [16], and pressing the (–) side decreases it. Holding the button down continuously increases or decreases the track number.

Using Highlight Scan

Highlight Scan is designed to enable you to conveniently scan all pieces of music contained in the disc by playing 10 seconds each at your designated point of time after the start of the music. The starting time of play is set at one minute in factory. Therefore, the Highlight Scan begins 1 minute after the start unless you designate it otherwise.

When you do not want to change the factory-set time:

- When used in conjunction with the old type Multi-Play CD Players [CDX-M70] or [CDX-M100], the place where playback starts in Highlight Scan is fixed as the start of each track. Also, it is not possible to adjust this time setting.

1. Pressing Button [8] turns on the frame of Highlight Scan [14].
2. The contained pieces of music will be played in sequence for 10 seconds each 1 minute after the beginning.
3. Press Button [8] again when your selected piece comes, and it will continue to play. At this point, the Highlight Scan discontinues to operate.

- The previous function automatically resumes when a piece of music with which Highlight Scan began returns.

Changing the Starting Time of Highlight Scan

When you want to set the starting time of the Highlight Scan to 30 seconds:

1. Indicate "**MANU**" [10] on the display by simultaneously pressing the (+) side and the (–) side of button [3].
2. Keep pressing either (+) or (–) side of Button [3] until the numerals reaches 30.
3. Pressing button [8] for 2 or more seconds, turns on the frame of Highlight Scan [14].
   Highlight Scan will begin 30 seconds after the start of the next piece of music.

- The starting time of Highlight Scan can be designated at ten or tens of seconds only. A tenth or tenths of seconds can be disregarded.
- If a piece of music ends before your designated point of time at which Highlight Scan starts, the scanning is performed for its beginning 10 seconds.
- If a piece of music lasts less than 10 seconds, so does the Highlight Scan.
- You may wish to change the starting time longer without suspending the function. You may do so, however, only to a relatively long-playing piece of music because, as a matter of course, the time cannot be set so as to come after the end of the music.

Using Disc Repeat, Music Repeat and Random Play

Each press of button [6] causes the mode to change as follows:

Music Repeat ("**RPT**" and the frame at [12] turn on) → Random Play ("**RDM**" and the frame at [12] turn on) → Normal.

If button [6] is pressed for 2 or more seconds, the mode changes to Disc Repeat ("**D.RPT**" and the frame at [12] turn on).

Music Repeat

1. To repeat the music you are listening to, select the repeat mode.
2. To cancel Music Repeat, press button [6] to turn off frame [12].

- When Disc Repeat or Music Repeat are not operational, the compact discs contained in the magazine will play sequentially from beginning to end, and then start from disc 1 again.

Random Play

1. To play music randomly, select the random play mode. Once the current track has been played, the microprocessor will randomly select the next and subsequent tracks.
2. To cancel random play, press button [6] to turn off frame [12].

- Since selections are played in random order, the same selection may be played twice in succession.
- When a Multi-Play CD Player CDX-M100 is used, random selection is made from a disc being played.

Disc Repeat

The Disc Repeat function causes the same disc to play repeatedly.

1. Press button [6] for 2 seconds or more while the desired disc is being played. The mode will change to Disc Repeat mode.
2. To cancel Disc Repeat, again, press button [6] for 2 seconds or more and turn off the frame at [12].

- Even during Disc Repeat, the mode will change each time button [6] is pressed, in the following order:
  Music Repeat → Random Play → Normal
- When Disc Repeat or Music Repeat are not operational, the compact discs contained in the magazine will play sequentially from beginning to end, and then start from disc 1 again.

Using Fast Forward and Reverse

1. Turn on **"MANU"** [10], by simultaneously pressing the (+) and the (–) sides of button [3].
2. Press the (+) side of button [3] for fast forward, and the (–) side for reverse.

- Sound is output during fast forward and reverse operations.

Pausing

1. Press button [5] to pause during disc playback (**"PAUSE"** and the frame at [11] appears).
2. Press button [5] again to release pause.

Note:

- When connected to a CDX-M50 some functions may not operate correctly. For example, when operating the pause function, the music will pause slightly ahead of the point at which the function was activated.
- The pause function does not operate at all if this unit is connected with the CDX-M70 or the CDX-M100.

Using Program Play

This function lets you program the play sequence of all of the tracks contained on the compact discs loaded in the magazine.

- The ITP function will not operate when connected to either the CDX-M70 or CDX-M100.
- Up to 32 selections can be programmed for a single magazine.
- Up to 16 different magazines (max. 32 selections per magazine) can be programmed individually. If you program more than 16 magazines, old programs are automatically replaced by new ones.
- Automatic Magazine Program Selection (AMPS) retrieves the right program from the memory automatically, as soon as a preprogrammed magazine is loaded. Preprogrammed magazines are identified using the CD in the tray 1 of the magazine. Therefore be sure that tray 1 contains a disc.

Programming

1. While a disc is playing, select the desired disc and track you want to program.
2. Press the ITP button [7] memorize the track being played.
   (Display shows **"P-01"** — **"P-32"**.)
3. Procedures 1 and 2 above can be repeated until a maximum of 32 steps are programmed.

- If the 33rd step is selected, the **"FULL"** display will appear, indicating that no more selections can be programmed.
- When there are already a number of selections in the memory, the new selection will be added to the last step.

Playing back the program

1. If the ITP button [7] is pressed for about 2 seconds during normal playback, then program playback will start.
   (Frame [13] lights up and the program step number **"PP01"** — **"PP32"** is displayed.)
2. Press the ITP button [7] again to cancel program play.

- Pressing button [3] during programmed play makes it possible search for a specific step number from among the programmed selections.
- Program play returns to the first step in the programmed sequence when it reaches the end of the program.
- When playing a magazine that has no program recorded, **"EMPTY"** will be displayed for approximately 3 seconds.

Erasing the Program

It is possible to erase one or all selections of the program in the magazine being played.

To erase a single selection:

1. Press the (+) or (–) side of button [3] during programmed play, and search for the specific step you wish to erase.
2. Press button [4] for at least 2 seconds and the selection being played will be erased.

- After the particular track has been erased, the tracks in the next position move from down up one notch in the order from the previous position.

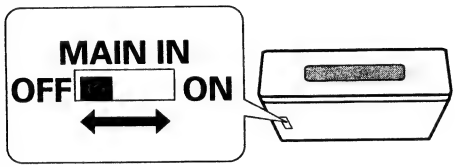
To erase the entire program:

While a disc is playing, hold down button [4] for at least 2 seconds. All the programs in the magazine being played will be erased.
(Display shows **"CLEAR"**.)

Carry out the following before connections and installation

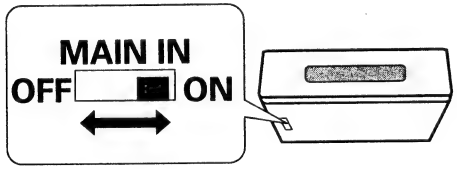
When not connecting a graphic equalizer to this unit

Make sure that the MAIN-IN switch on the bottom of this unit is OFF. This unit's audio is not output if this switch is ON, so switch to OFF.



When connecting a graphic equalizer to this unit

Make sure that the MAIN-IN switch on the bottom of this unit is ON. If you forget to switch to ON, the graphic equalizer will not work correctly.



Connections

Note:

- *This unit is only for cars with 12V batteries (negative grounded). Carefully check the battery voltage before installing this unit in a truck or bus.*
- *To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.*
- *After completing installation and wiring, double check that there are no mistakes. Re-install any parts removed from the car during installation, then connect the battery negative terminal.*
- *When wiring cords, fasten them with clampers, adhesive tape, or the like. Also, to protect the insulation of cords, always protect them with tape or the like where they touch metal sections.*
- *Wire and fasten cords in such a way that they are not caught in the transmission shift lever, parking brake, seat rails, and other moving parts. Also, avoid hot locations such as the outlets of heaters. A cord with its insulation cut by moving parts or melted by heat can short to the body of the car, which is dangerous!*
- *Do not wire Orange leads (for constant-feed power supply) by cutting a hole into the engine compartment and connecting directly to the battery.*
- *Do not cut cords to shorten them. This is dangerous because it may prevent the protection circuit from operating correctly.*
- *Do not cut into the insulation of this unit's power cord to take out power for another unit! This is dangerous because it can overload and overheat the power cord.*
- *Replace the fuses only with the types stipulated on the fuse holder.*
- *Cover unused terminals with tape to prevent electrical shorts.*
- *Refer to the owner's manual for details on connecting the various cords of the power amp and other units, then make connections correctly.*
- *Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker ⊖ leads are common.*
- *Speakers connected to this unit must be high-power type possessing maximum input of at least 30W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.*
- *When the power amp is being linked with this system, be sure not to connect the blue lead to the amp's power terminal. Likewise, when linking this system with the auto-antenna, do not connect to power terminal for the antenna. Such connection can make overcurrent cause malfunctions.*
- *When the unit is mounted in a vehicle whose ignition switch does not have the ACC (accessory) position as shown in Fig. 11, be sure to connect the red lead of the unit to the terminal controlled by the ignition switch ON/OFF position. If you do not, the vehicle battery may go flat when you leave your vehicle for several hours.*

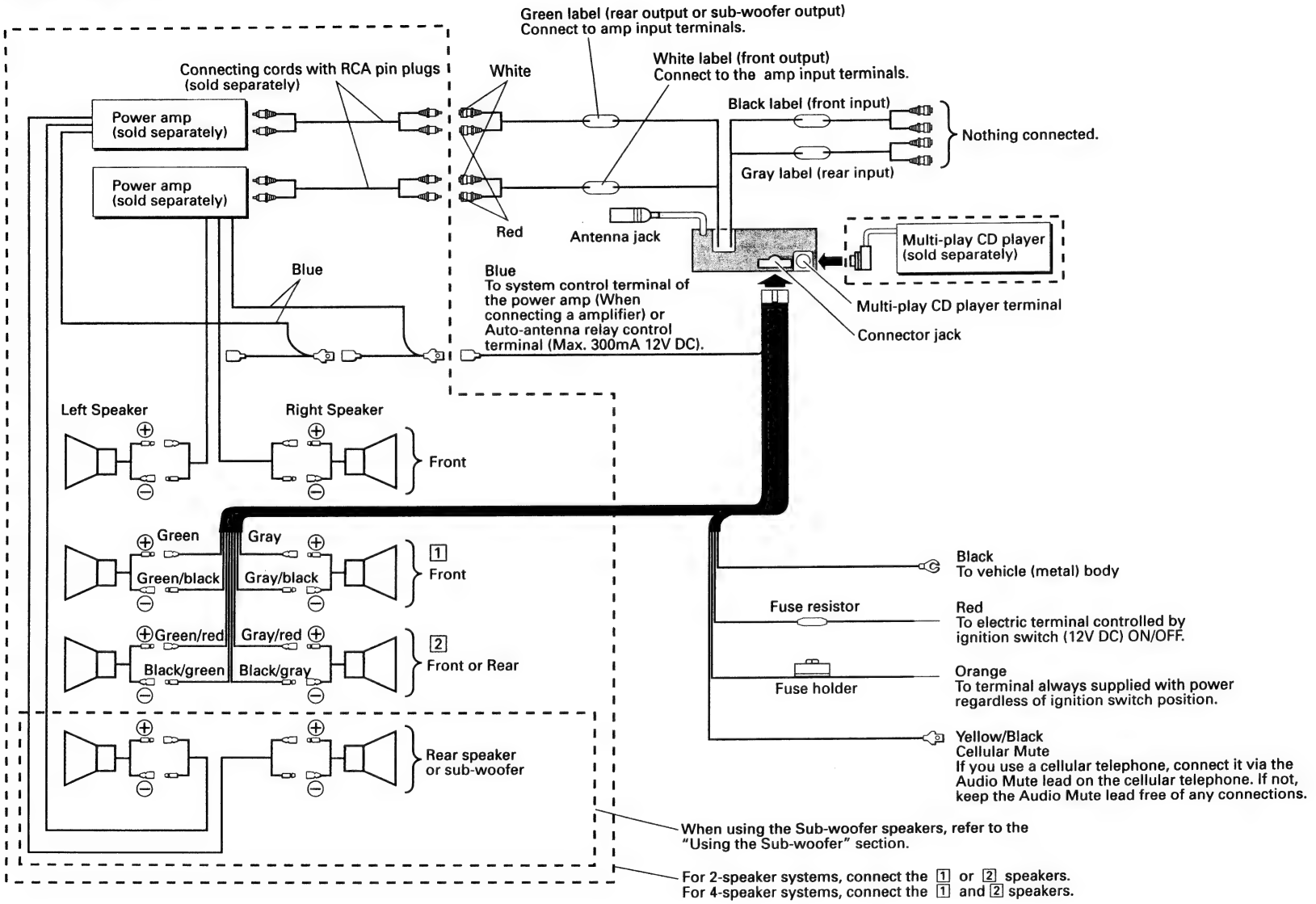
ACC position

Fig. 10

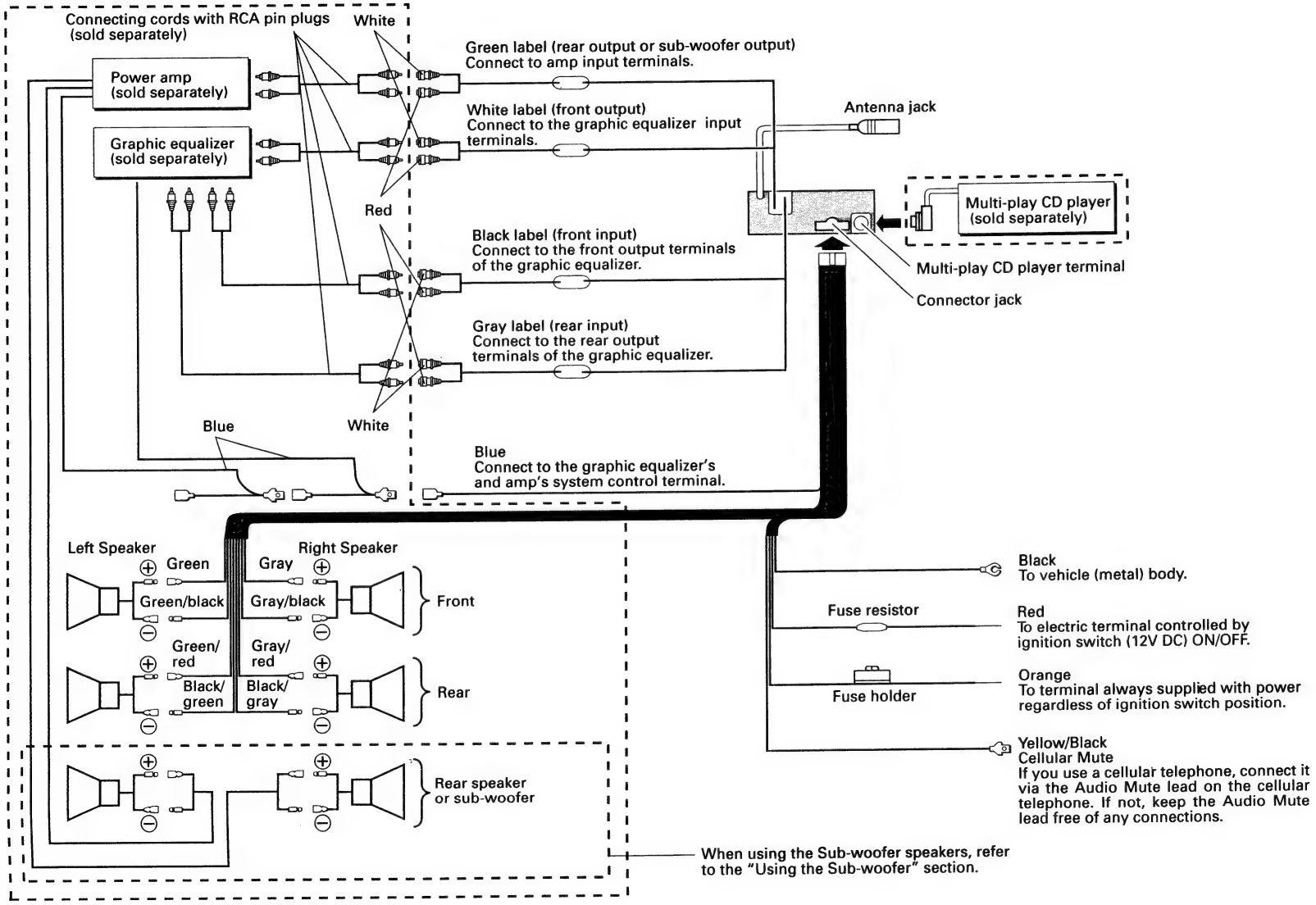
No ACC position

Fig. 11

●Speaker system



●Speaker + graphic equalizer



8. USING THE CLOCK DISPLAY

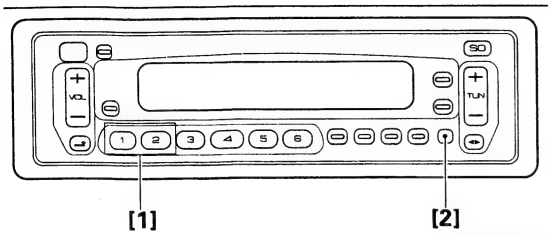


Fig. 12

Parts Identification (Fig. 12)

[1] 1 button: hour adjustment
[1] 2 button: minute adjustment
[2] Clock

Displaying the Time

The clock is displayed when button [2] is pressed.
Press button [2] again to switch off the clock display.

- The clock display can be used only when the main unit is in operation.
- When the clock is being displayed, pressing any other button will end the clock display. The clock will be displayed again about 25 seconds after the last button is pressed.

Adjusting the Time

Adjusting Hour

While holding down button [2], press button 1 of the buttons shown on [1], to adjust the hour setting. Each time button 1 is pressed, the hour advances by one hour. Holding down button 1 advances the hour at high speed.

Adjusting the Minutes

While holding down button [2], press button 2 of the buttons shown on [1] to adjust the minute setting. Each time button 2 is pressed, the minute advances by one minute. Holding down button 2 advances the minute at high speed.

9. DISASSEMBLY

●Removing the Case
1.Remove the two screws.
2.Insert and turn pair of tweezers to remove the case.

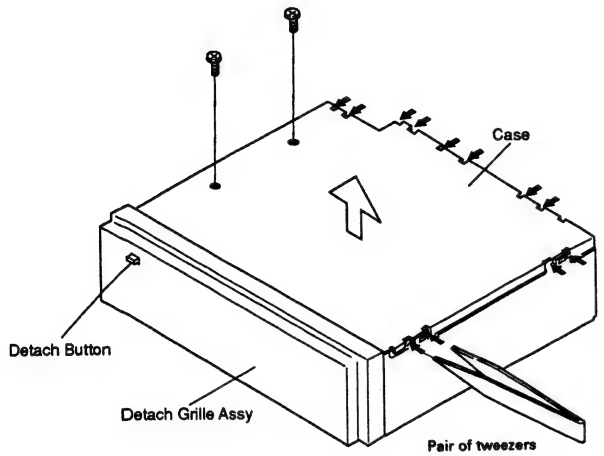


Fig.13

●Removing the Cassette Mechanism Module
1.Remove the four screws.
2.Disconnect the connector of deck unit.
3.Remove the cassette mechanism module.

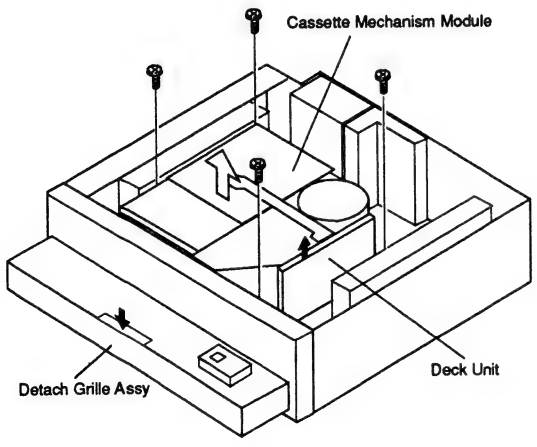


Fig.14

●Removing the Detach Grille Assy
1.Press the detach button.(Fig.13)
2.Press the button indicated by arrow and then remove the detach grille assy. (Fig.14)

●Removing the Panel Assy
1.Remove the two screws,and disconnect the two connectors.
2.Disengage the stoppers at four locations indicated by arrows.
3.Remove the panel assy.

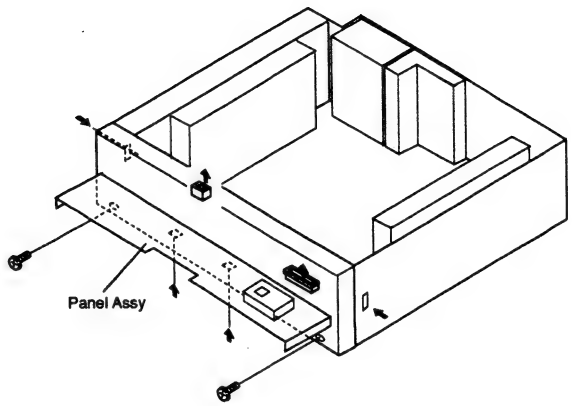


Fig.15

●Removing the Tuner Amp Unit
1.Remove the seven screws.
2.Remove the screw A and then remove the holder.
3.Unbend the tabs at two locations indicated by arrows until straight.
4.Raise up on tuner amp unit to remove it from chassis unit.

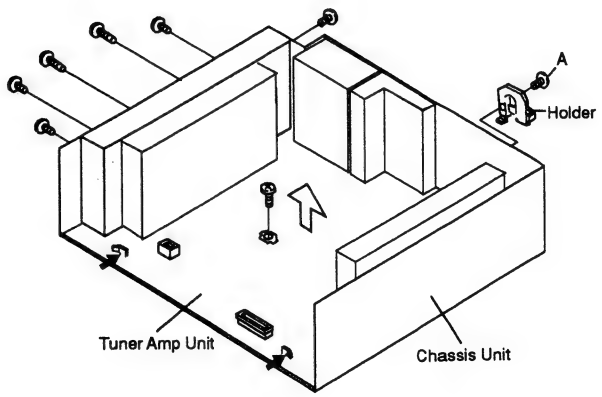


Fig.16

●Removing the Cover Unit

1.Remove the three screws.
2.Disengage the stoppers at four locations indicated by arrows.
3.Remove the cover unit.

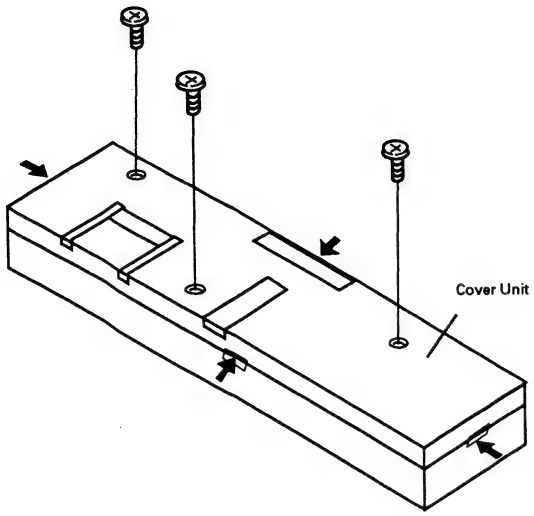


Fig.17

●Removing the Key Board Unit

1.Remove the three screws.
2.Remove the key board unit.

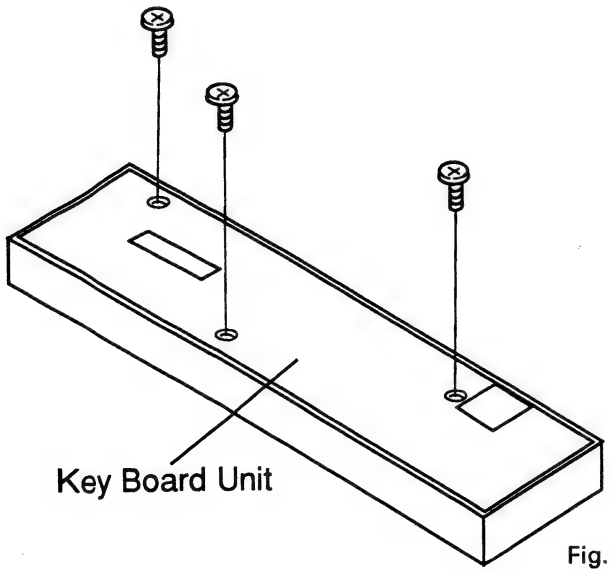


Fig.18

10. BLOCK DIAGRAM

●KEH-M780/US

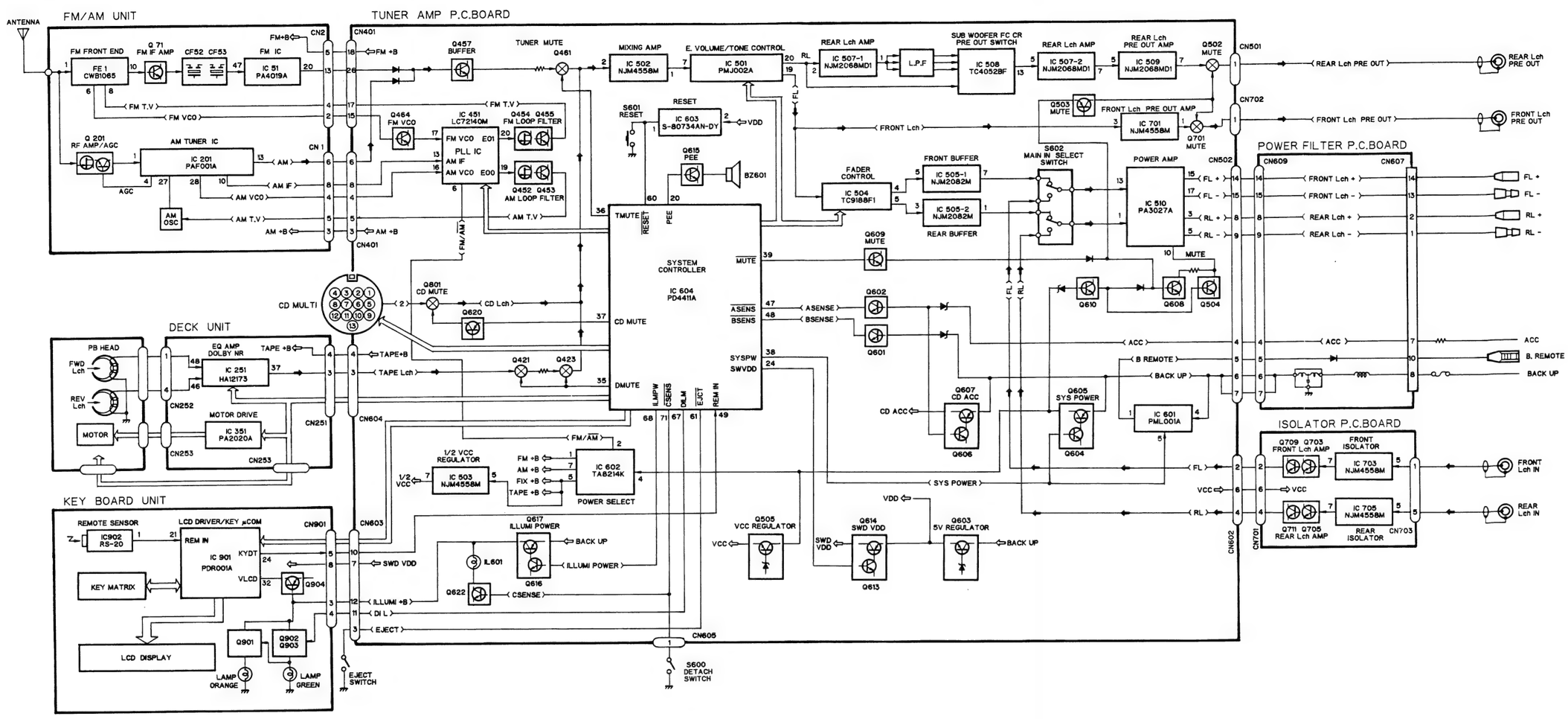


Fig. 19

11. ADJUSTMENT

●Test Mode

Test mode is mainly used in adjustment of CD multi-players.

●Switching to test mode
1.Turn off the Back-up and ACC off.
2.Discharge VDD.
3.Turn the Back-up and ACC on while pressing the 4 and 6 keys together.

●Canceling test mode
While pressing the CD multi-player clear button, switch this unit back-up and ACC off.

●Key functions during test mode
The CD multi-player, deck, and tuner are selected by the SOURCE button.

a) CD multi-player

key	Function
ITPCLR/DIR/BAND	Regulator ON/OFF
AUTO/MANU(FF+REV)	Carriage/Tracking switching
FF	FWD kick
REV	REV kick
F1(TSCAN)	Tracking close
F3	Tracking open
F2	Focus close
DISC1-DISC6	DISC Change

b) Deck and tuner
No corresponding function. Normal operation executed.

●Flow Chart

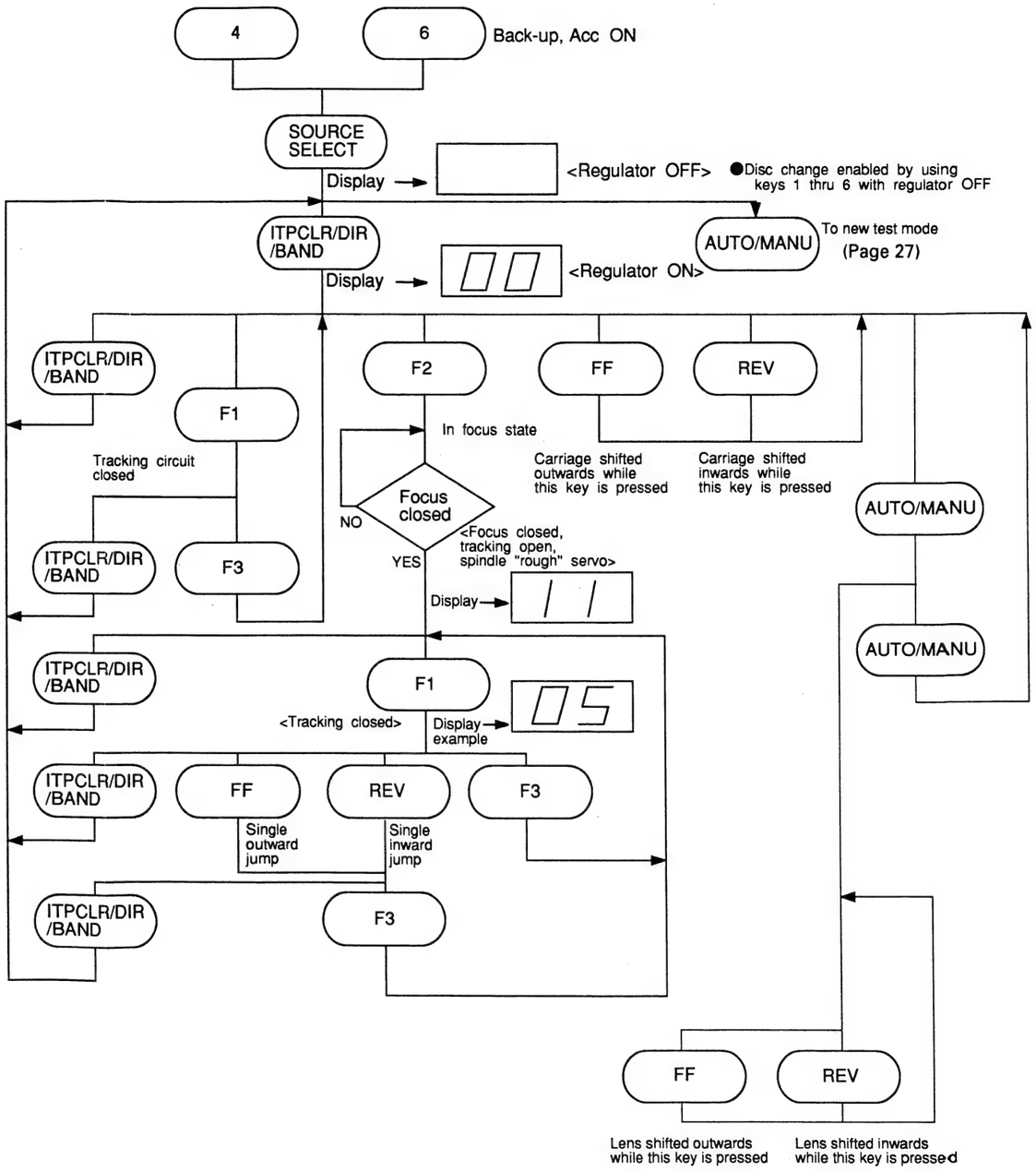


Fig. 20

●Connection Diagram

NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of SSG.

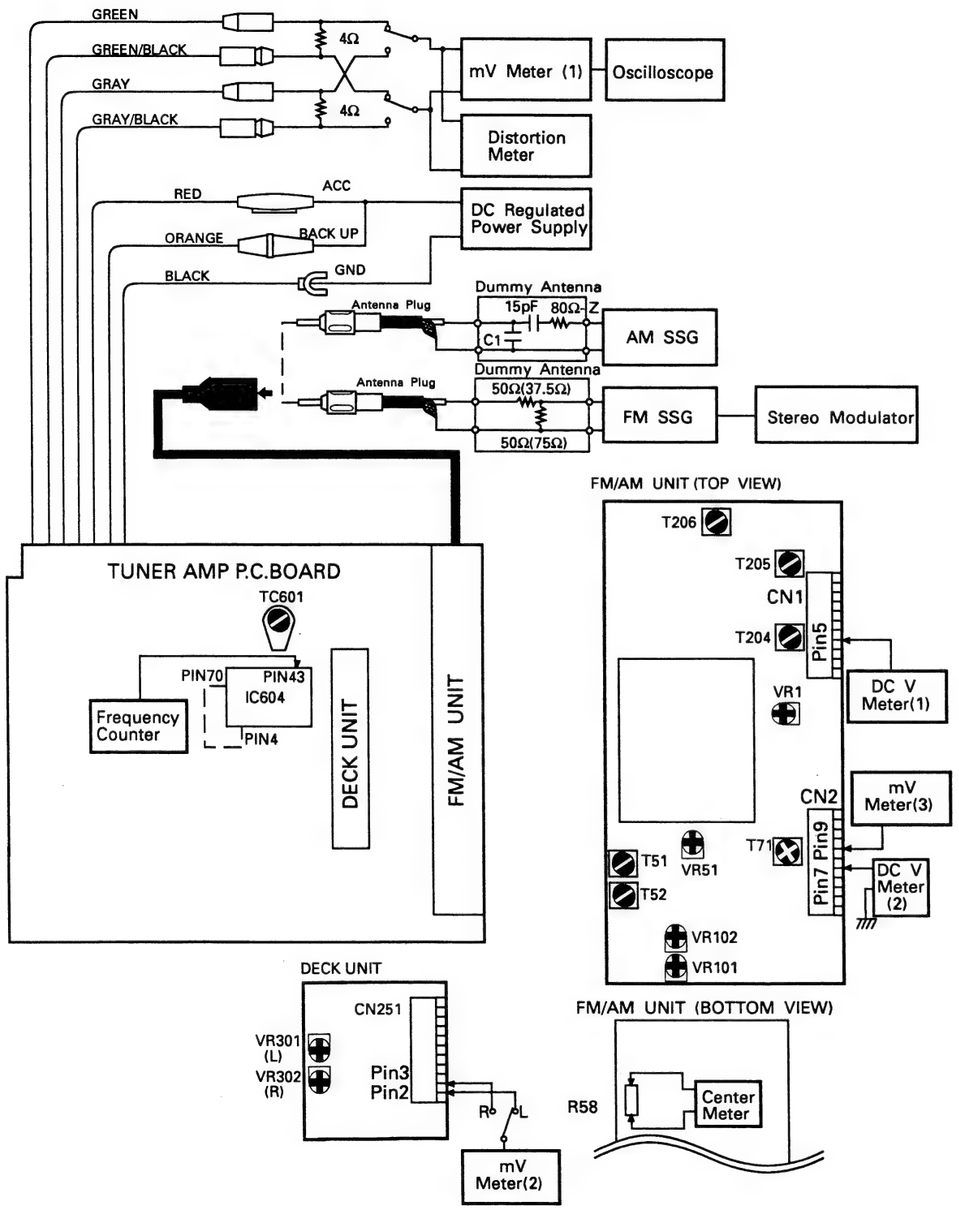


Fig. 21

FM ADJUSTMENT ※ Stereo MOD.: 1kHz, L+R=90% , Pilot=10%

	No.	FM SSG(400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBμV)			
IF	1	98.095	60	98.1	T51	Center Meter:0
	2	98.095	60	98.1	T52	Distortion Meter:Minimum
	3	Repeat No.1—2 alternately so that the center meter indicates the 0 output and distortion meter indicates minimum output.				
IFT	1	98.1	60	98.1	T71	mV Meter(3):Minimum
Soft	1	98.1	60	98.1	——	mV Meter(1): A dB
Mute	2	98.1	9	98.1	VR102	mV Meter(1): A-3 dB
ARC	1	98.1※	33	98.1	VR101	mV Meter(1):Separation 5 dB
SD	1	98.1※	15	98.1	VR51	DC V Meter(2):Approx. 5V
LOCH	1	98.1※	53	98.1	VR1	DC V Meter(2):Approx. 5V

AM ADJUSTMENT *:ES model when tuning step at 9kHz.

	No.	AM SSG(400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	——	——	1,710 *(1,602)	——	Verify that DC V Meter (1) is less than 6.5V.
	2	——	——	530 *(531)	——	Verify that DC V Meter (1) is more than 2.0V.
IF	1	1,000 *(999)	15	1,000 *(999)	T204, T205, T206	mV Meter(1):Maximum

CLOCK ADJUSTMENT

No.	Adjusting Point	Adjustment Method (Switch Position)
1		Pin 70(TEST) of IC604 connect to pin 4(VDD) of IC604.
2	TC601	Frequency Counter:1.048576MHz±2Hz

DOLBY NR ADJUSTMENT

No.	Cassette Tape	Adjusting Point	Adjustment Method (Switch Position)
1	NCT-150(400Hz, 200nwb/m)	VR301(Lch) VR302(Rch)	mV Meter(2):-8.24dBm±1dB (300mV) (DOLBY NR Switch:OFF)

●New Test Mode

The CD ,either single or multiple, plays in the normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disc number in the multi-mode).
During the setup, the CD software operation status (internal RAM and C-point) is displayed.
The software on the head unit side dose not involve any special problem but runs normally.

(1) How to Put in the NEW TEST Mode
See the test mode flow chart page 24.
(2) Relations of keys between TEST and NEW TEST Modes.

P-BUS Commands	Keys	Test Mode Regulator OFF	Regulator ON	New Test Mode Play in progress	New Test Mode Error / Protection } Talking place
B0	ITPCL/DIR /BAND	Regulator ON	Regulator OFF	(REL/CLR)	Time of occurrence / Cause of error } Selected
B1	FF	—	FWD-KICK	FF	—
B2	REV	—	REV-KICK	REV	—
B3	F•1	—	TRACKING CLOSE	F•1	—
B4	F•3	—	TRACKING OPEN	F•3	—
B5	F•2	—	FOCUS CLOSE	F•2	—
B6	—	—	FOCUS OPEN	—	—
B7	—	—	Jump-OFF	—	—
B8	FF REV	To new Test Mode	Jump-Mode selected	FF REV	Occurrence T.No / Time of occurrence } Selected

Operations, such as EJECT, CD ON/OFF, etc. are to be performed normally

(3)Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause/Detail
40	ELECTRIC	PLAY	FOK=L100ms	Put out of focus
41	ELECTRIC	PLAY	LOCK=L100ms	Spindle unlocked
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Subcode fails to read
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated

Scar, Stain, Vibration, Servo defect, etc....

*The error code is identical with those in the normal mode.

(4)Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving on the internal circumference	10-second time out
03	Carriage moving on the external circumference	10-second time out
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closing	Failure to focus closing
14	Spindle kicked and focus checked	Out of focus
15	Tracking closed and focus checked	Out of focus
17	Carriage closed and focus checked	Out of focus
18	Lock / subcode } Waiting	Failure to lock, Subcode failed to read out of focus
19	End	None

(5)Example of 7-segment Display.
(a)SET UP in progress

TRACK MIN SEC
11 11 11 While in the TEST MODE, a status number is indicated in TNO, MIN and SEC.
TRACK
11
MIN SEC
11 11

(b)Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the multi mode.

(c)Protection/Error upon occurrence

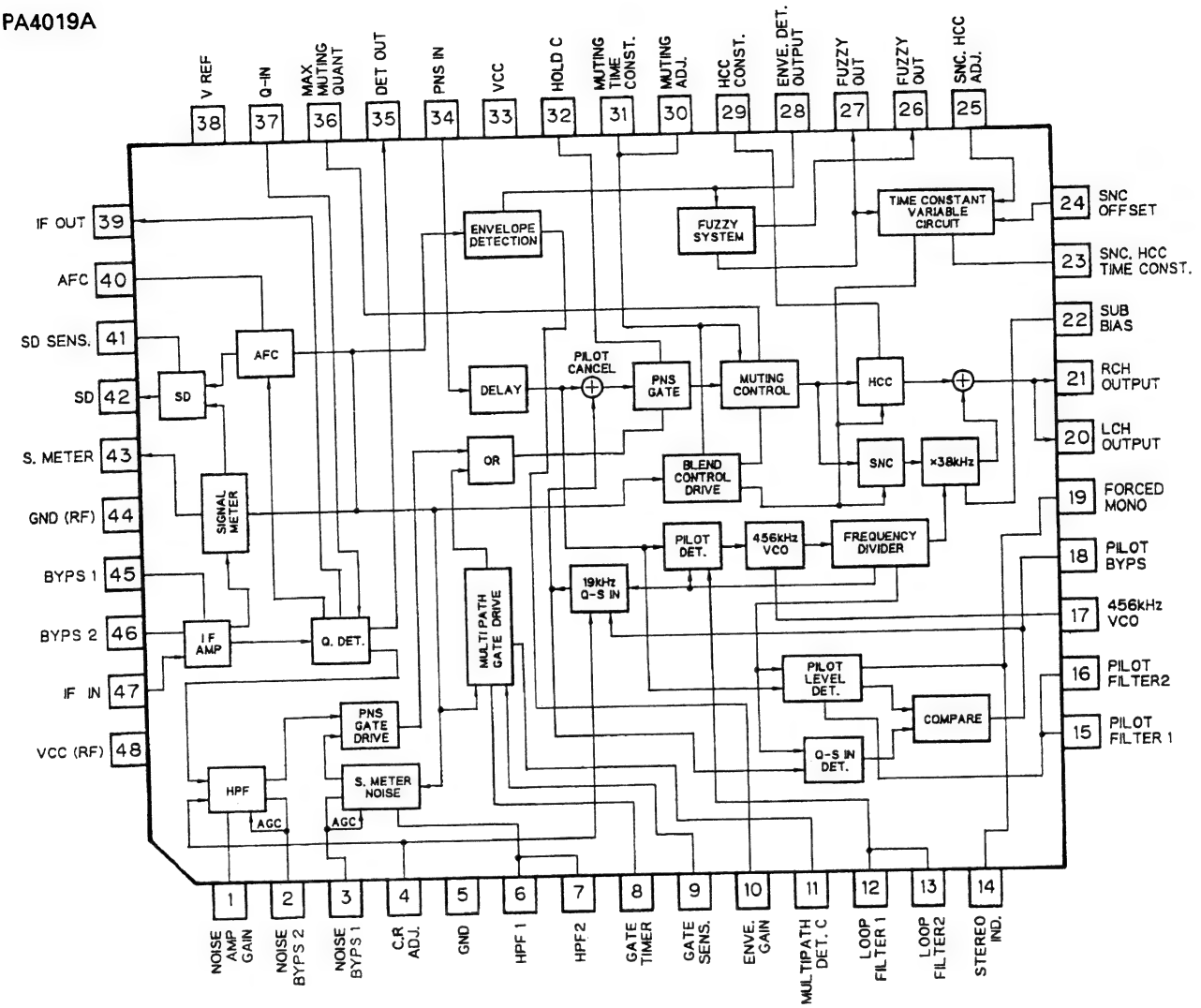
ERROR-XX While in the error mode, an error number is displayed in MIN and SEC.

Select the display with the BAND/REL key.

TRACK MIN SEC
10 40 05 While in the PLAY MODE, an absolute time is indicated in TNO, MIN and SEC.
TRACK
10
MIN SEC — Select the display with the TRACK +/- key.
40 05

●ICs

PA4019A



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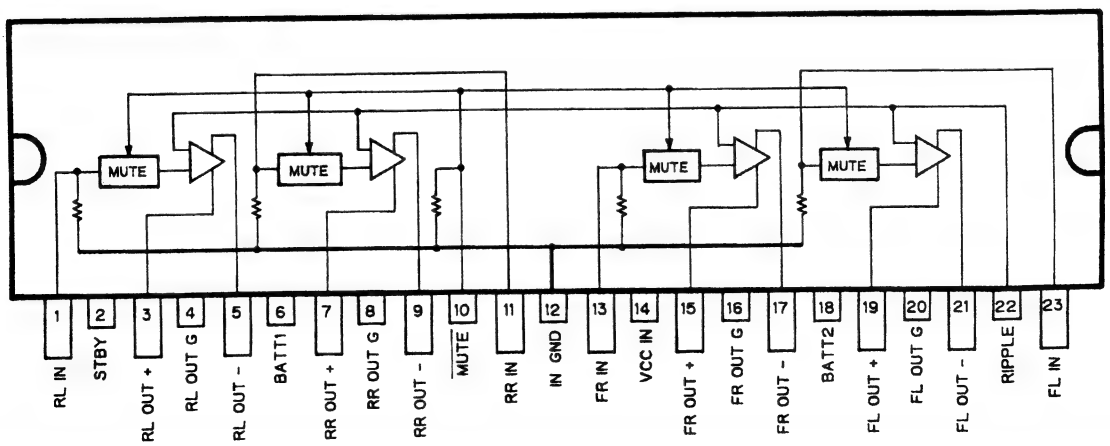

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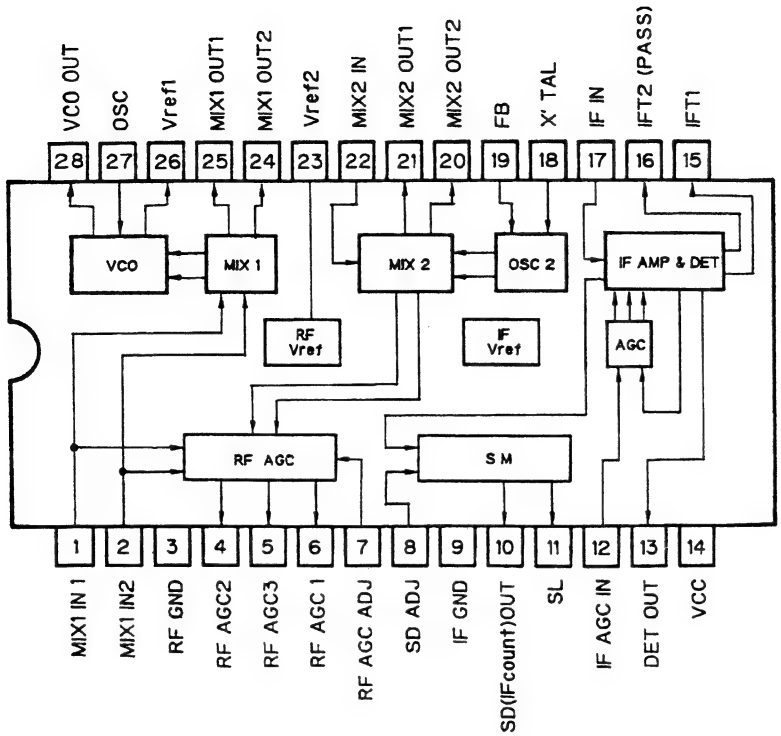

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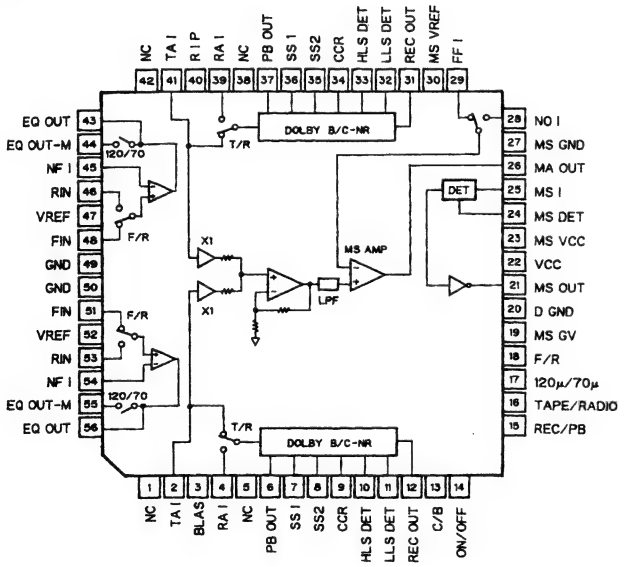

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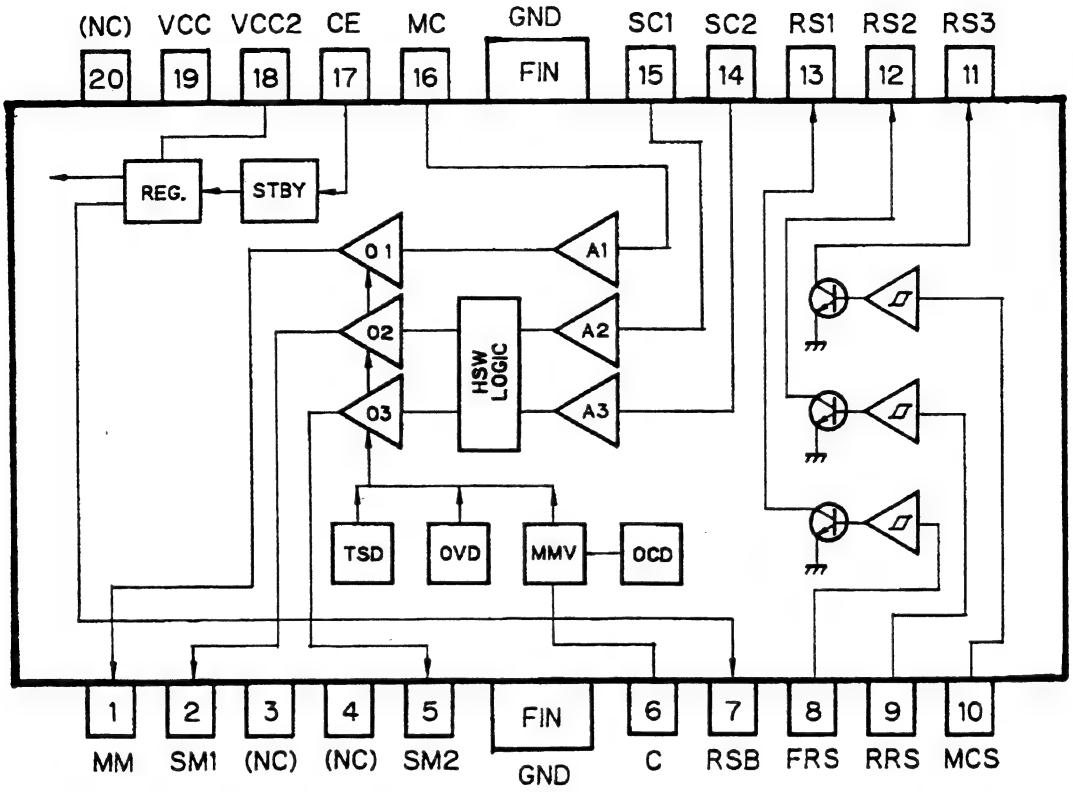

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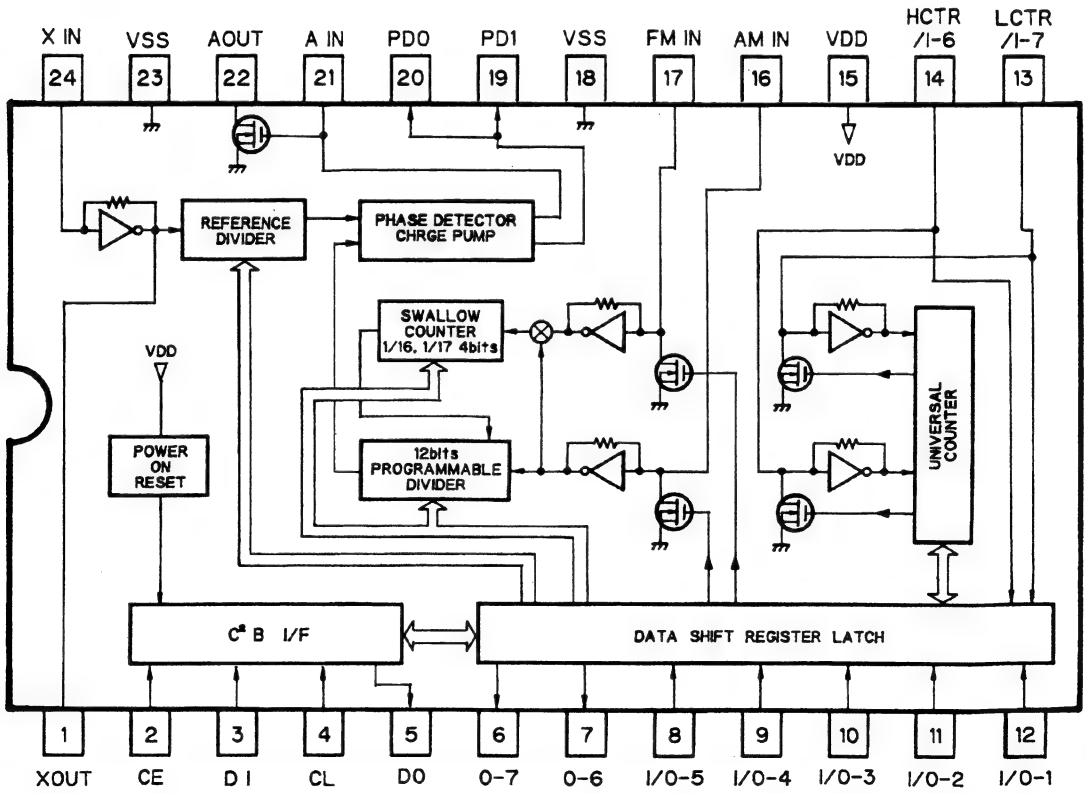

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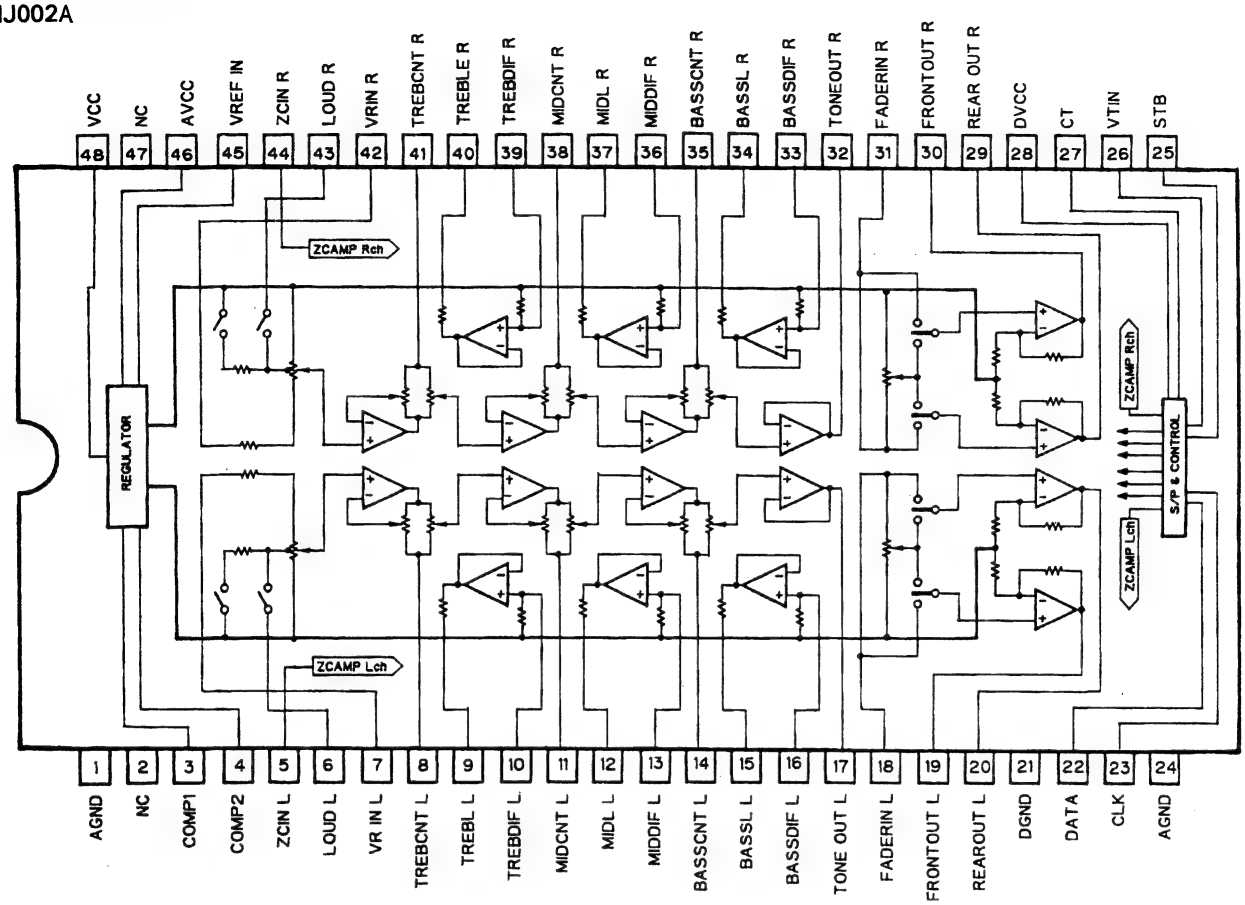

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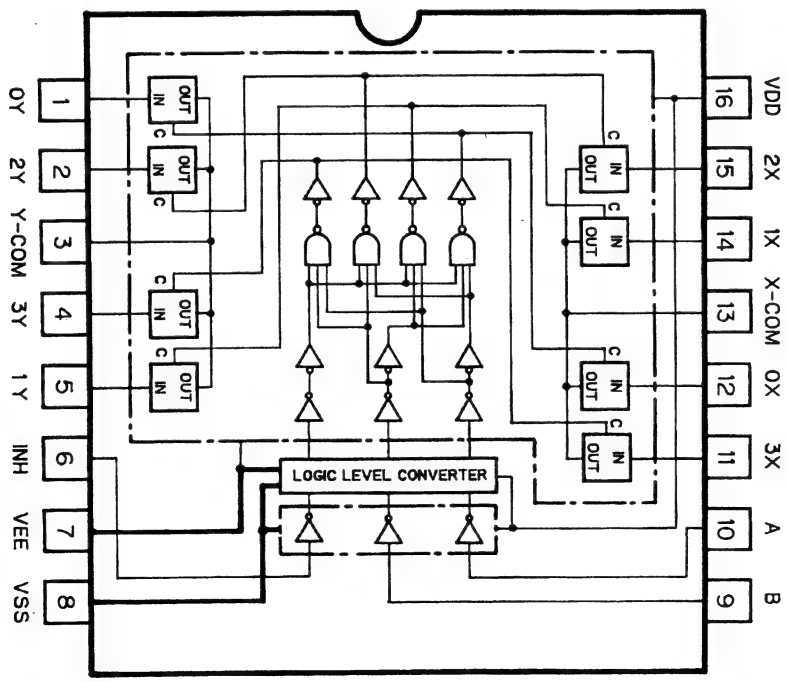

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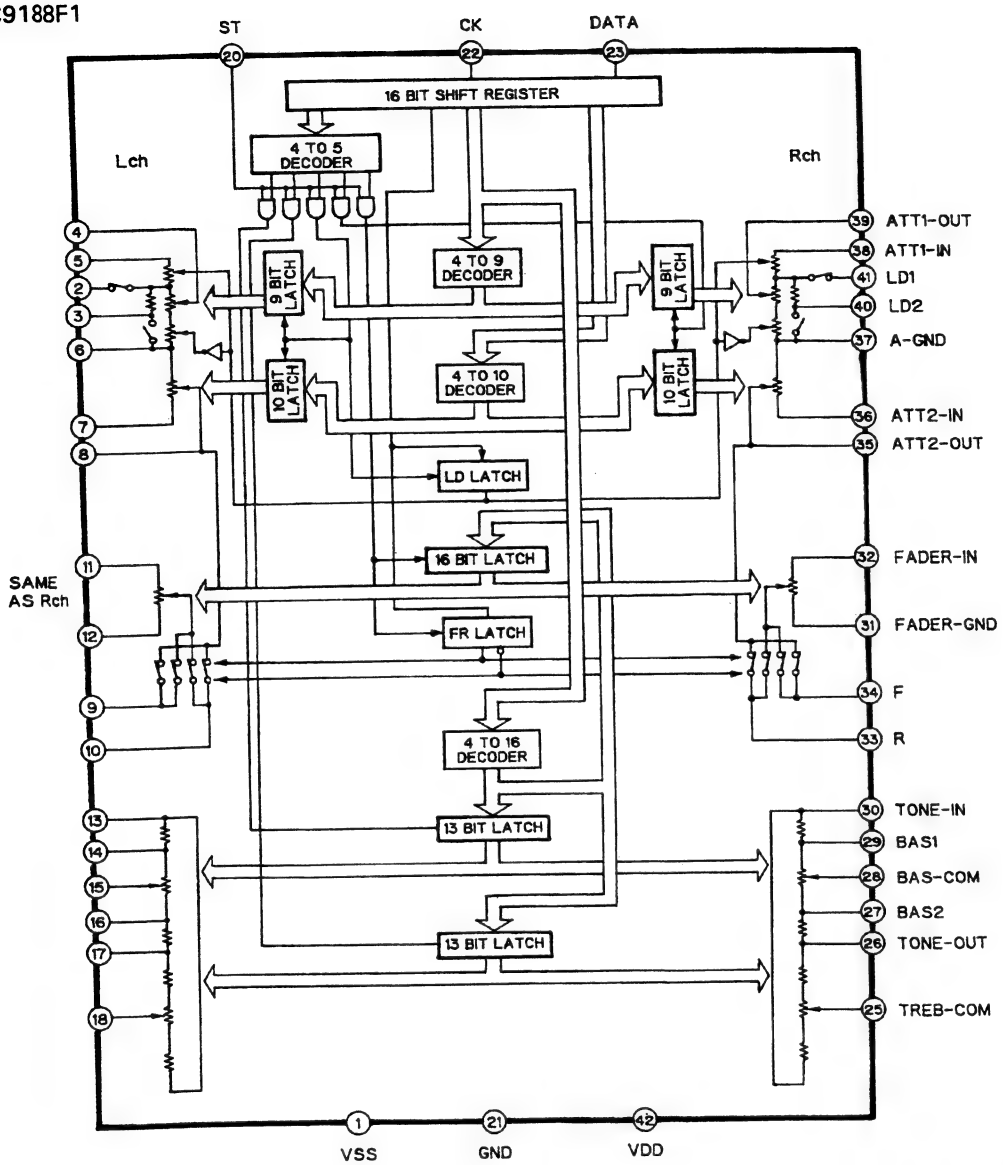
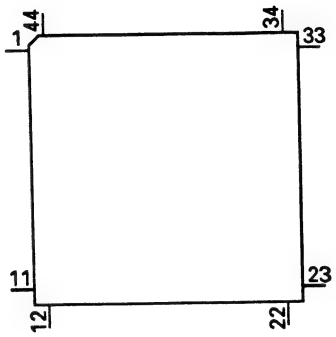
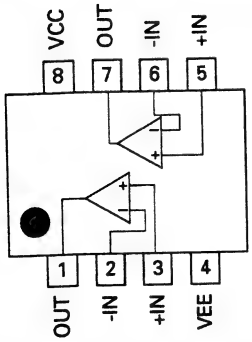




NJM4558M,NJM2082M,NJM2068MD1



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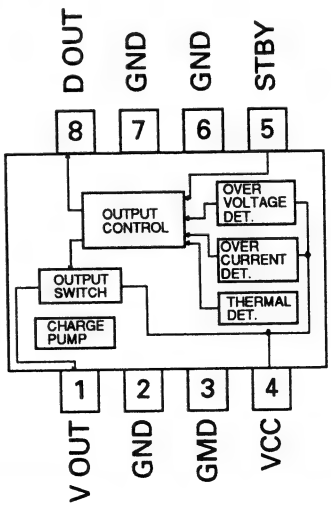

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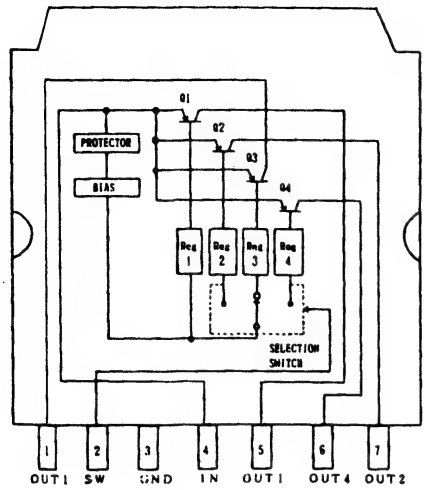

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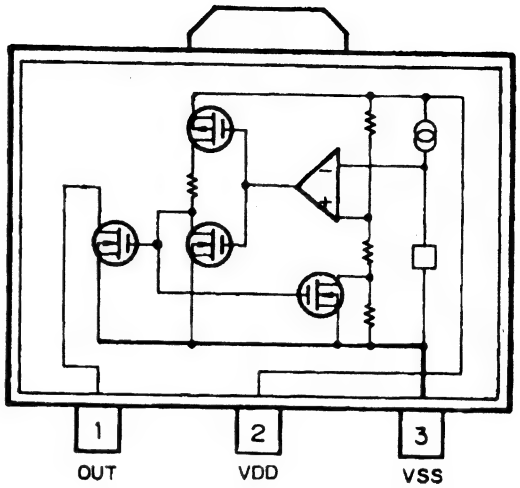
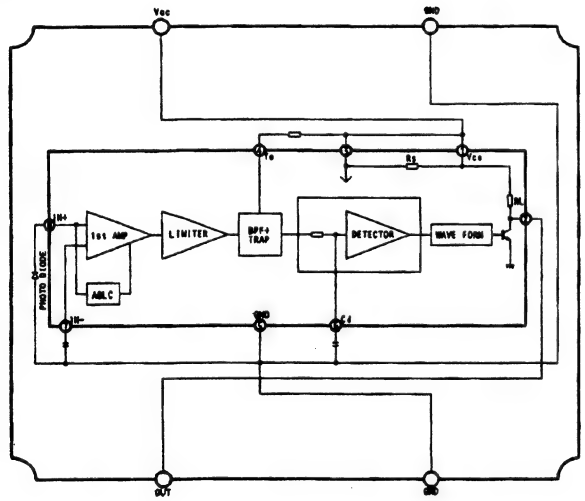


RS-20



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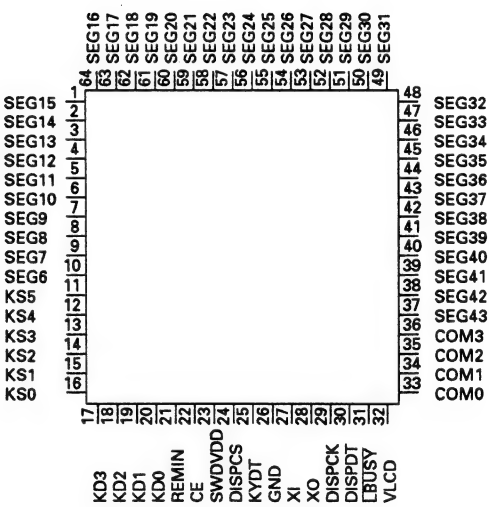


●Pin Functions(PD4411A)

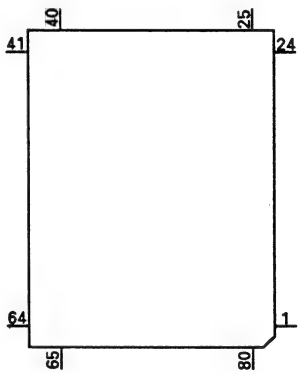
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	SL	I		SD level input
2	ADV			Analog input reference power
3	VDD1			Device power supply terminal
4	VDD2			Device power supply terminal
5	$\overline{\text{ADPW}}$	O	C	Control output for analog input reference power
6	$\overline{\text{RDSEN}}$	O	C	Enable output for RDS IC
7	RDSSEL	O	C	Select output for RDS IC
8	$\overline{\text{RDSRST}}$	O	C	Reset output for RDS IC
9	TUNPW	O	C	PLL power supply control output
10	PCK	O	C	Serial clock output for PLL IC
11	PDO	O	C	Data output for PLL IC
12	PCE	O	C	Chip enable output for PLL IC
13	SC2	O	C	Cassette mechanism sub motor control output
14	SC1	O	C	Cassette mechanism sub motor control output
15	CM	O	C	Cassette mechanism capstan motor control output
16	$\overline{\text{STBY}}$	O	C	Cassette mechanism driver stand-by output
17	RDSDTI	I		Serial input for RDS IC
18	RDSDTO	O	C	Serial output for RDS IC
19	RDSCK	O	C	Serial clock for RDS IC
20	PEE	O	C	Beep tone output
21	LCS	O	C	Chip select output for LCD driver
22	LDT	O	C	Data output for LCD driver
23	LCK	O	C	Clock output for LCD driver
24	SWVDD	O	C	Grille power supply control output
25	$\overline{\text{F/R}}$	O	C	Cassette mechanism head forward/reverse select output
26	PLY	O	C	Cassette mechanism MS gain select output
27	$\overline{\text{B/C}}$	O	C	Cassette mechanism dolby B/C select input
28	NR	O	C	Cassette mechanism noise reduction output
29	$\overline{\text{ILM}}$	I		External illumination input
30	MS	I		Cassette mechanism MS sense input
31	$\overline{\text{MTL}}$	I		Cassette mechanism tape select input
32	LD	I		Cassette mechanism loading sense input
33	GND			GND
34	MONO	O	NM	Forced mono output
35	DMUTE	O	NM	Deck intercept mute output
36	TMUTE	O	NM	Tuner mute output
37	CDMUTE	O	C	CD mute output
38	SYSPW	O	C	System power supply control
39	$\overline{\text{MUTE}}$	O	C	Mute output
40	$\overline{\text{BRST}}$	O	C	P-Bus communication reset output
41	$\overline{\text{BRXEN}}$	I/O	C	Bus communication reception enable input pin
42	EVCK	O	C	Electric volume serial clock output
43	TP	O	C	Clock adjustment pin
44	EVDT	O	C	Electric volume serial data output
45	EVST	O	C	Electric volume strobe output
46	$\overline{\text{DSENS}}$	I		Grille detach sense
47	$\overline{\text{ASENS}}$	I		ACC power sense input pin
48	$\overline{\text{BSENS}}$	I		Back up power sense input pin
49	REMIN	I		Remote control pulse input
50	$\overline{\text{BSRQ}}$	I		P-BUS serial pole request input
51	BSIO	I/O	C	P-BUS serial data input/output
52	$\overline{\text{BSCK}}$	I/O	C	Bus serial clock input/output
53	TOSC	I		Pull down
54	GND			GND
55	XT1			Not used
56	XT2			Not used
57	GND			GND
58	X1			Not used
59	X2			Not used
60	$\overline{\text{RESET}}$	I		Reset input
61	$\overline{\text{EJCT}}$	I		Eject key input

Pin No.	Pin Name	I/O	Output Format	Function and Operation
62	POS	I		Cassette mechanism position sense input
63	RES	I		Cassette mechanism reverse end sense input
64	NES	I		Cassette mechanism forward end sense input
65	SUB0	O	NM	Sub woofer select
66	SUB1	I	NM	Sub woofer select
67	DILM	O	NM	Illumination select output
68	ILMPW	O	NM	Illumination power supply control output
69	TEL	I		TEL mute input
70	TEST			Test terminal
70	$\overline{\text{CSENS}}$	I		Flap close sense
72	$\overline{\text{LBUSY}}$	I		Busy input for LCD driver
73	AGND			Analog circuit GND
74	PDI	I		Data input for PLL IC
75	RDSRDY	I		Ready input for RDS IC
76	SD	I		SD input for tuner
77	GND			GND
78	SEL1	I		Destination sense
79	SEL2	I		Destination sense
80	SEL3	I		Destination sense

Output Format	Meaning
C	CMOS output
NM	Middle resistivity N channel open drain

IC's marked by* are MOS type.
Be careful in handing them because they are very liable to be damaged by electrostatic induction.

*PD4411A



●FM Front End (CWB1065)

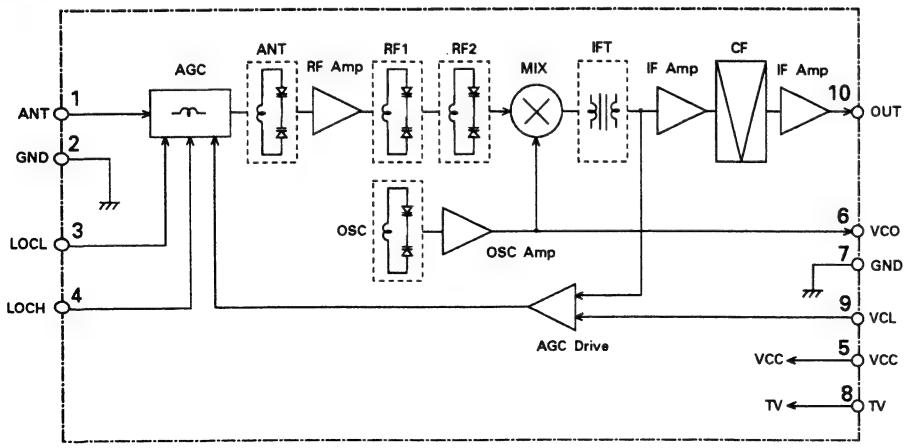
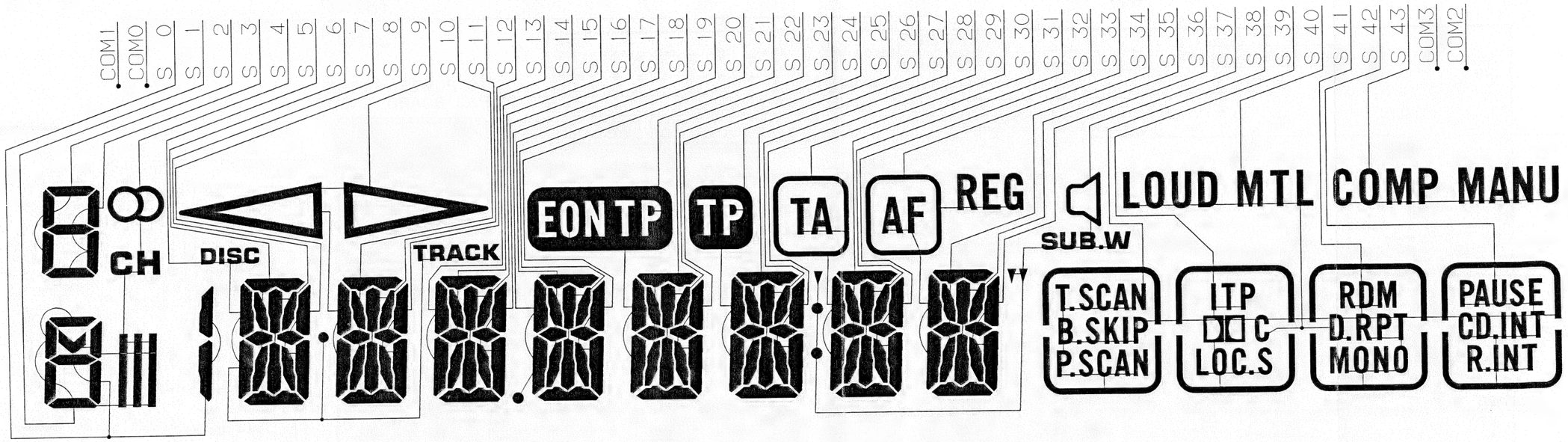


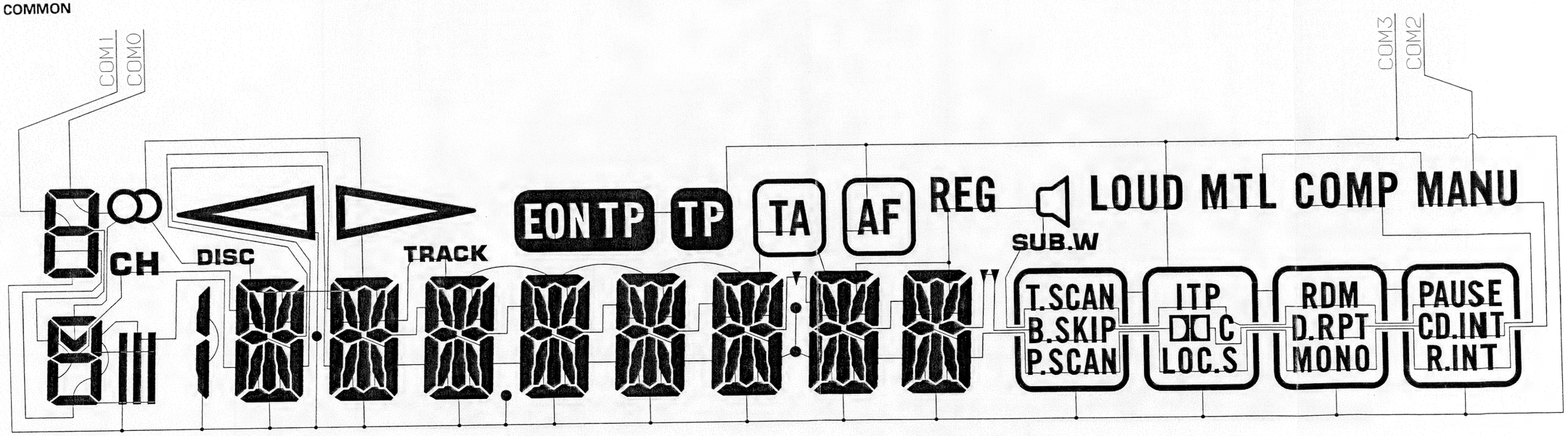
Fig. 22

●LCD (CAW1192)

SEGMENT



COMMON



12. CONNECTION DIAGRAM (KEH-M780/US, KEH-M8550/ES)

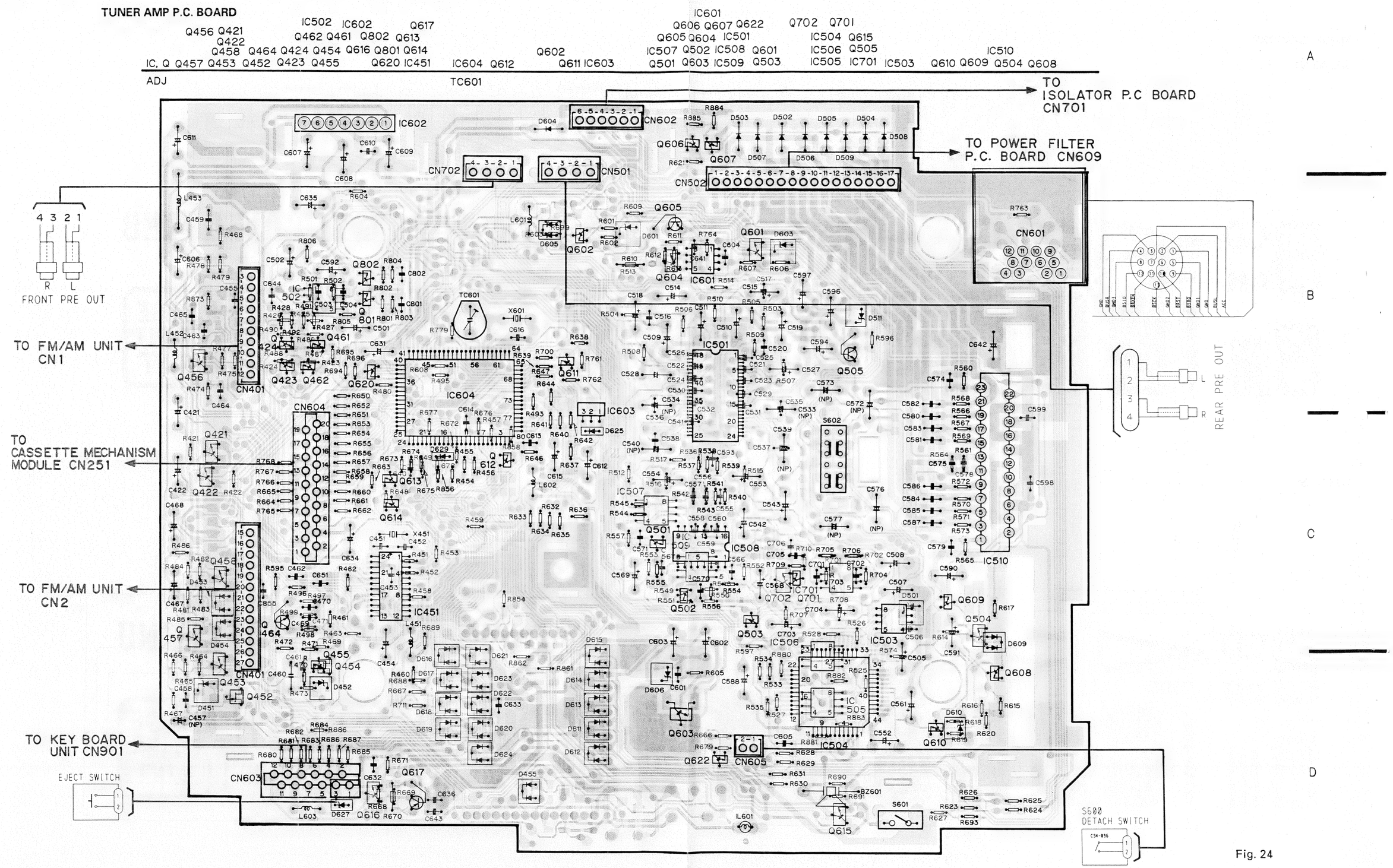
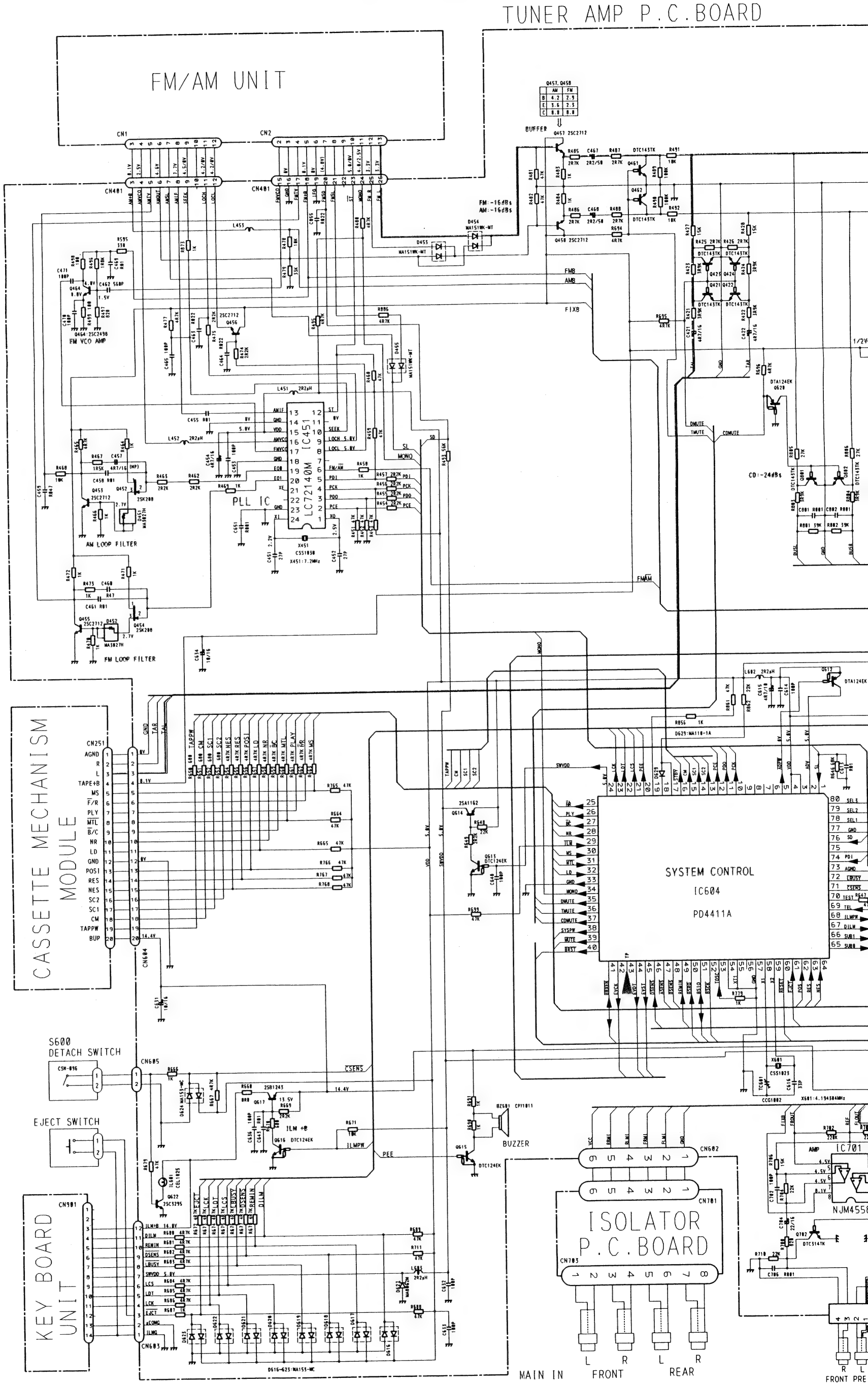


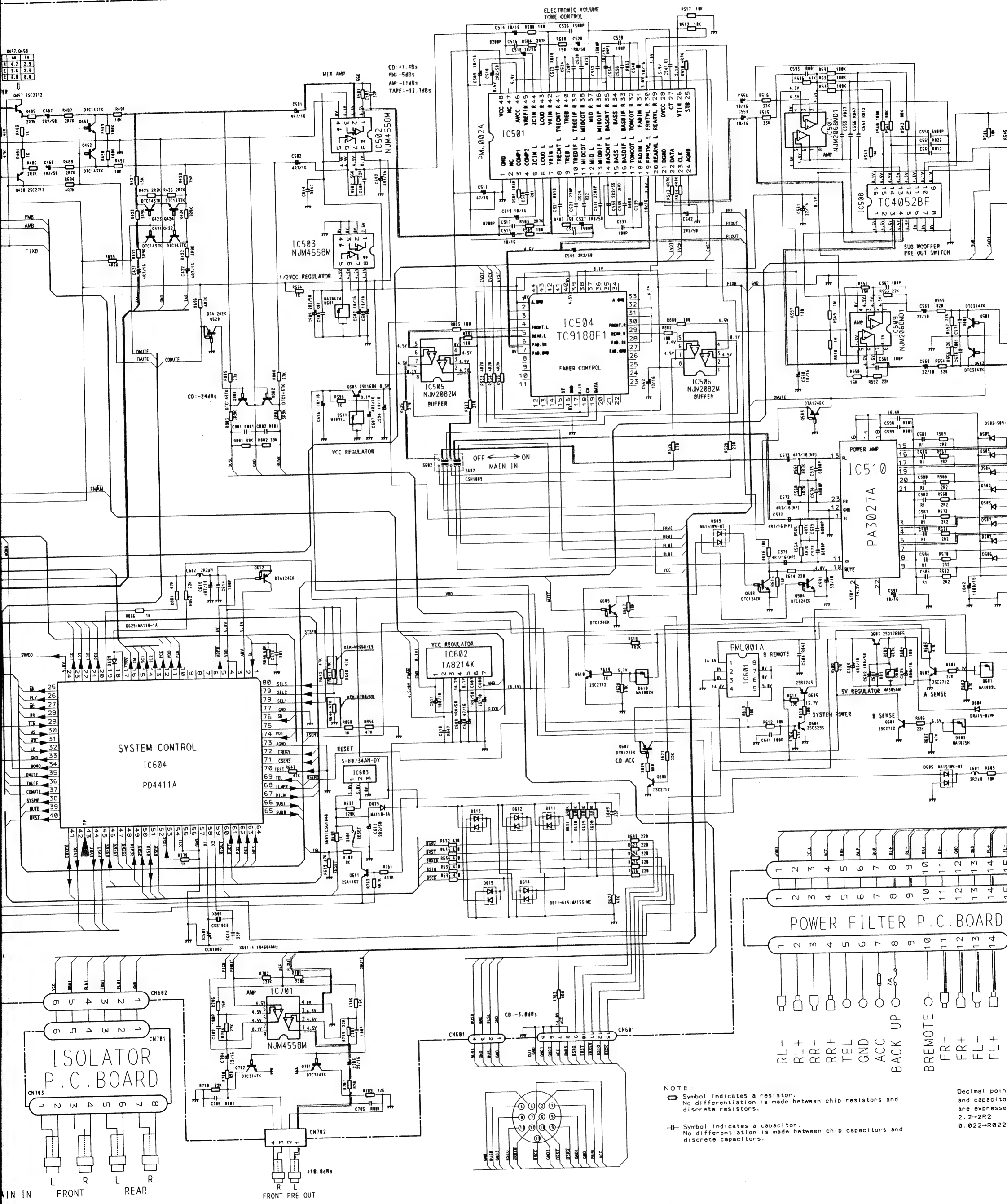
Fig. 24

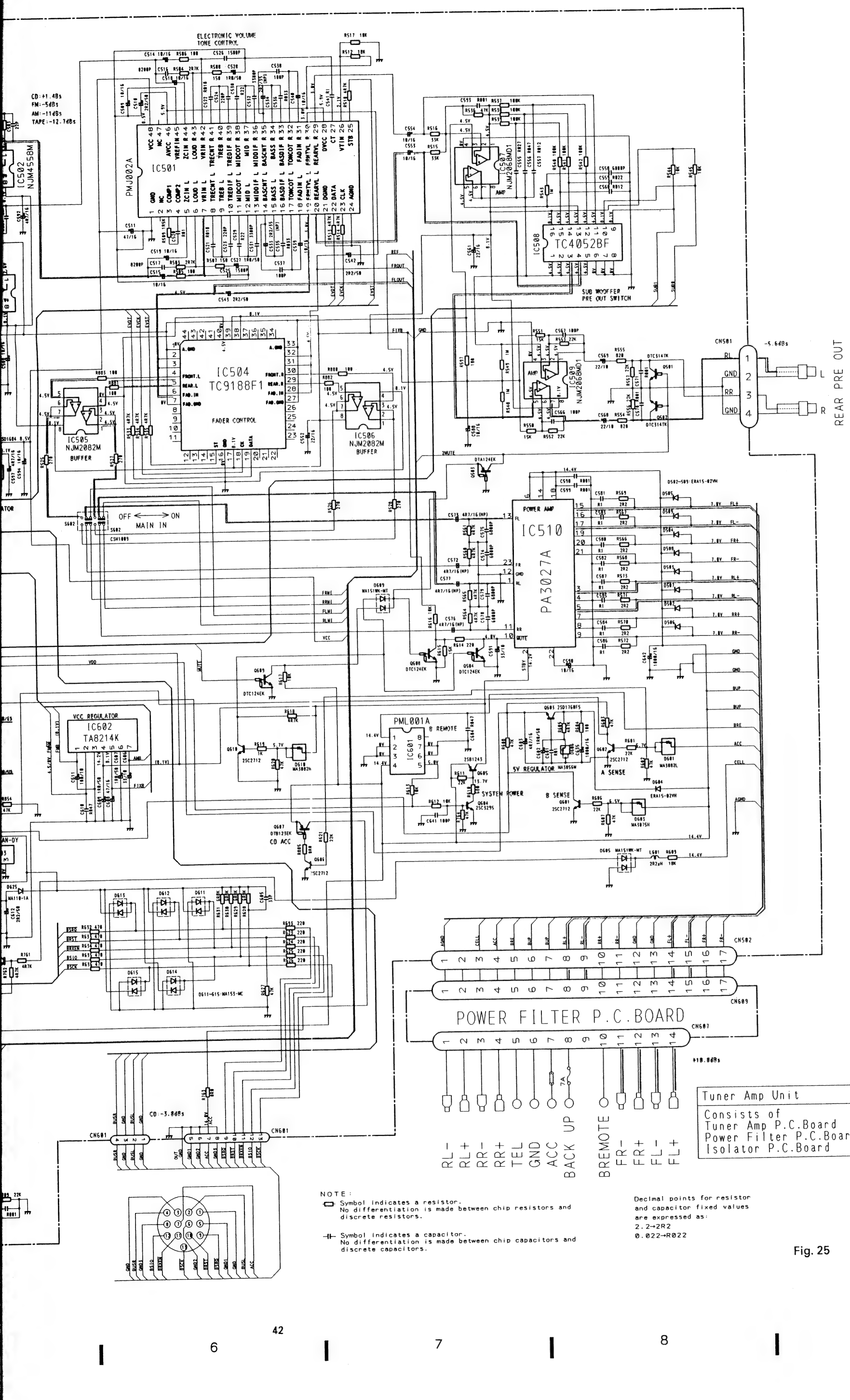
13. SCHEMATIC CIRCUIT DIAGRAM (KEH-M780/US, KEH-M8550/ES)



M8550/ES)

ER AMP P.C.BOARD





Tuner Amp Unit
Consists of Tuner Amp P.C.Board Power Filter P.C.Board Isolator P.C.Board

NOTE:

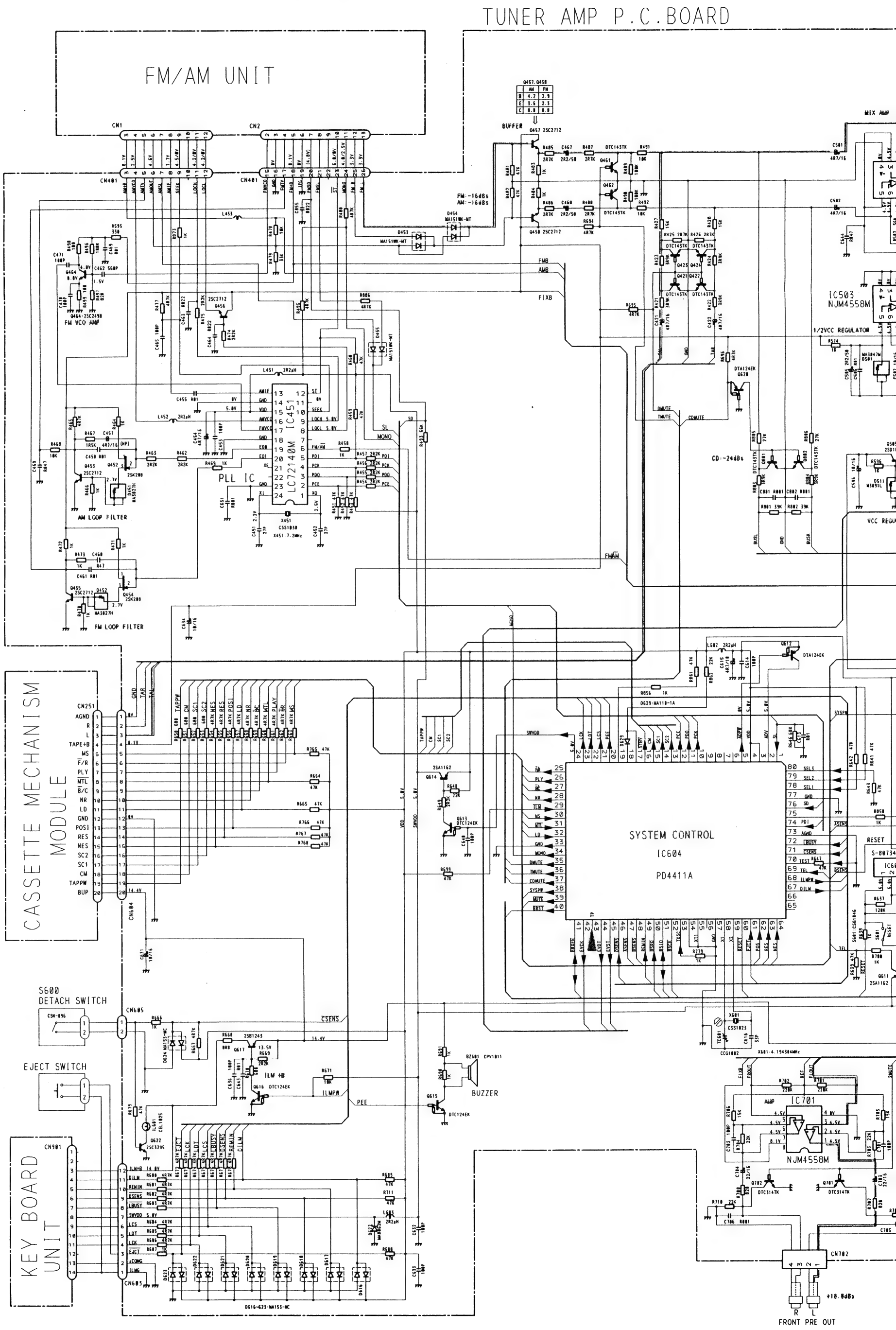
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

Fig. 25

14. SCHEMATIC CIRCUIT DIAGRAM (KEH-M8500/US)



AMP P.C.BOARD

ELECTRONIC VOLUME
TONE CONTROL

MIX AMP

CD:+1.4dBs
FM:-5dBs
AM:-11dBs
TAPE:-12.7dBs

IC501
PMJ002A

IC502
NJM4558M

IC503
NJM4558M

1/2VCC REGULATOR

IC504
TC9188F1
FADER CONTROL

IC505
NJM2082M
BUFFER

IC506
NJM2082M
BUFFER

VCC REGULATOR

IC509
NJM4558M

IC510
PA3027A
POWER AMP

IC602
TA8214K
VCC REGULATOR

IC603
S-80734AN-DY
RESET

IC604
PD4411A
SYSTEM CONTROL

IC601
PML001A
B REMOTE

5V REGULATOR MA3056M

SYSTEM POWER

A SENSE

B SENSE

CD ACC

IC701
NJM4558M

CD:-24dBs

CD:-3.8dBs

+18.8dBs

FRONT PRE OUT

CN501

CN502

CN601

CN602

CN607

CN609

CN782

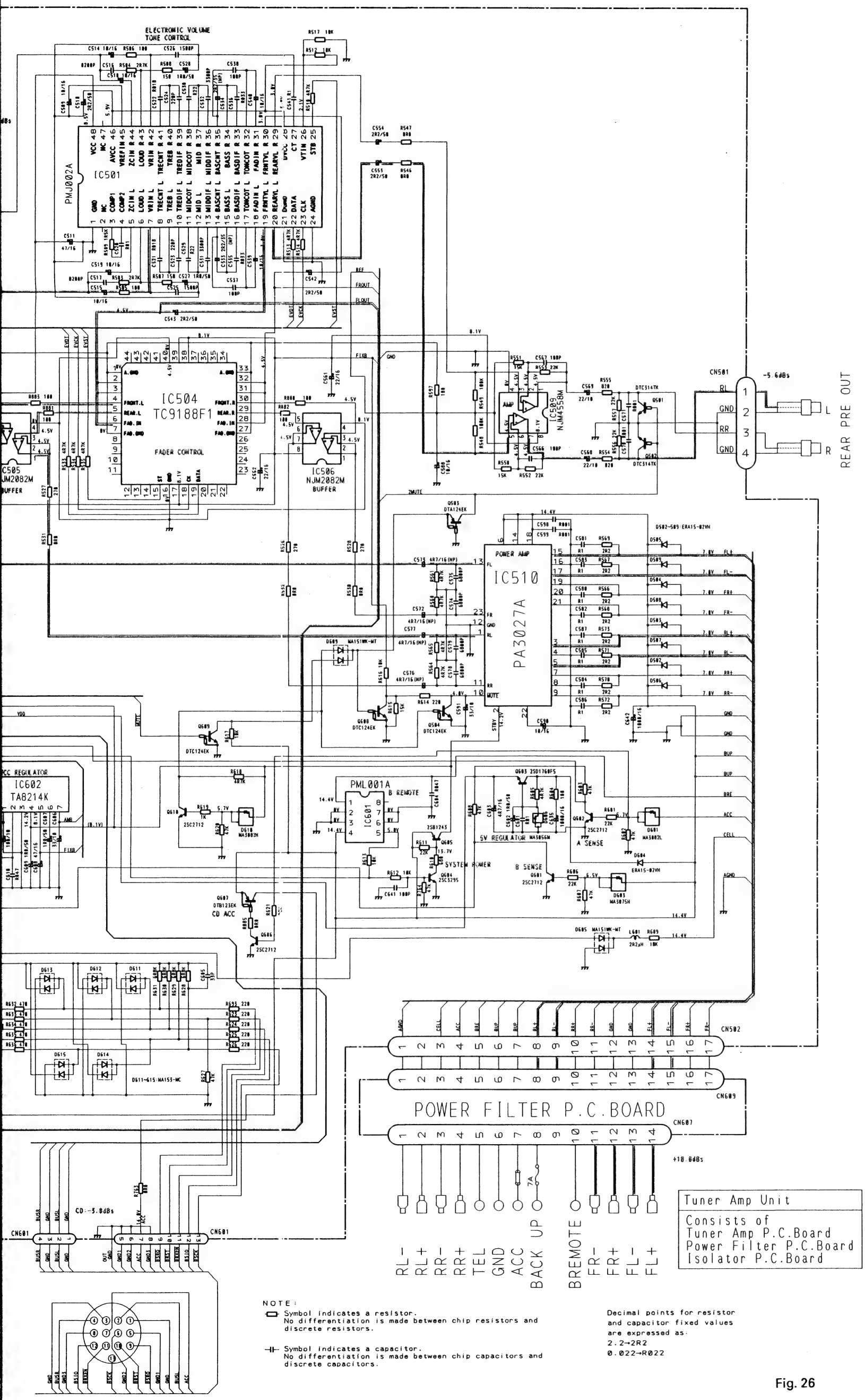
POWER FILTER P.C.BOARD

RL- RL+ RR- RR+ TEL GND ACC BACK UP BREMOTE FR- FR+ FL- FL+

Tuner Am
Consists
Tuner Am
Power Fi
Isolator

NOTE:
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022



Tuner Amp Unit
Consists of Tuner Amp P.C.Board Power Filter P.C.Board Isolator P.C.Board

NOTE:

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

Fig. 26

15. CONNECTION DIAGRAM (KEH-M8500/US)

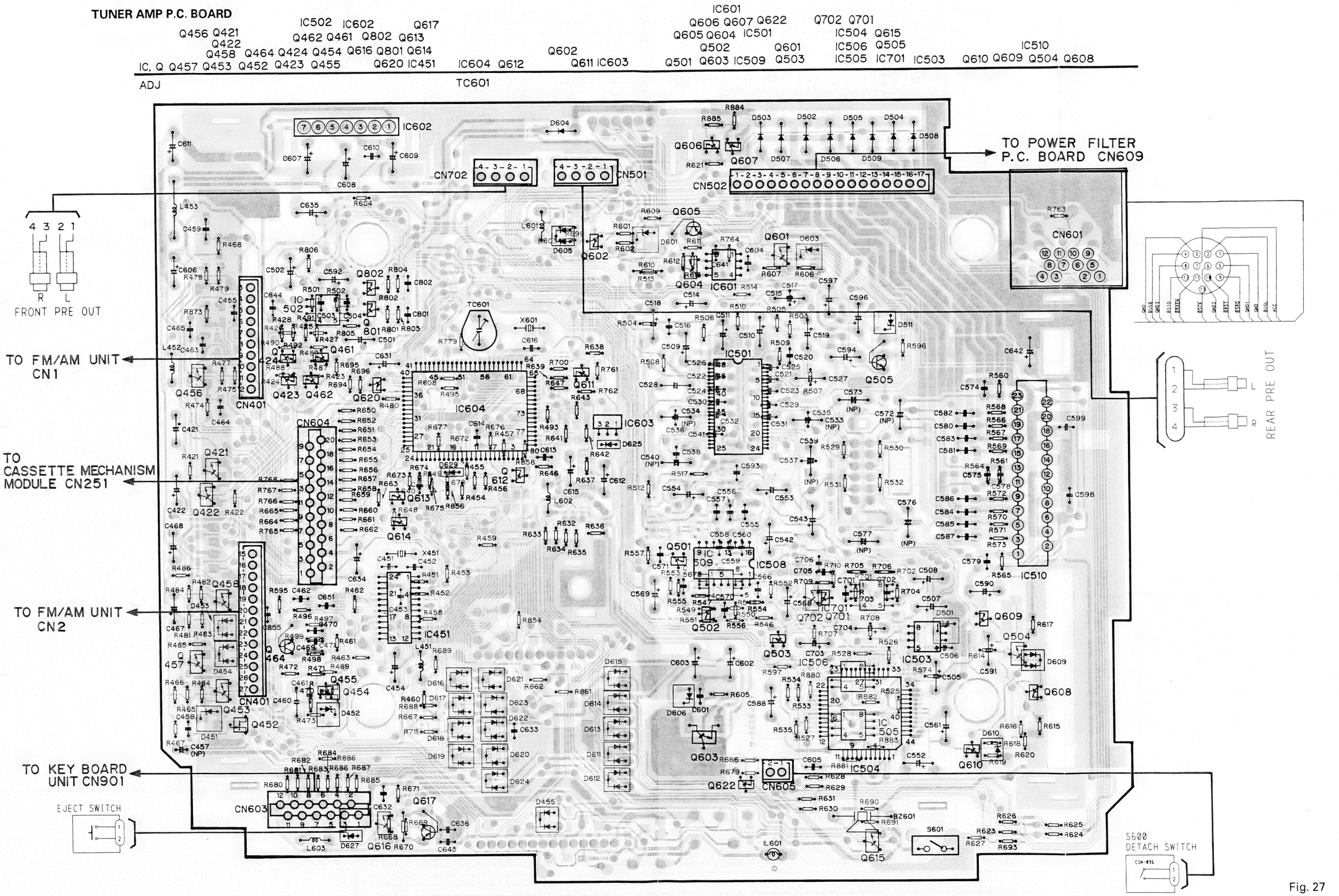


Fig. 27

16. CIRCUIT DIAGRAM AND PATTERN

16.1 FM/AM UNIT

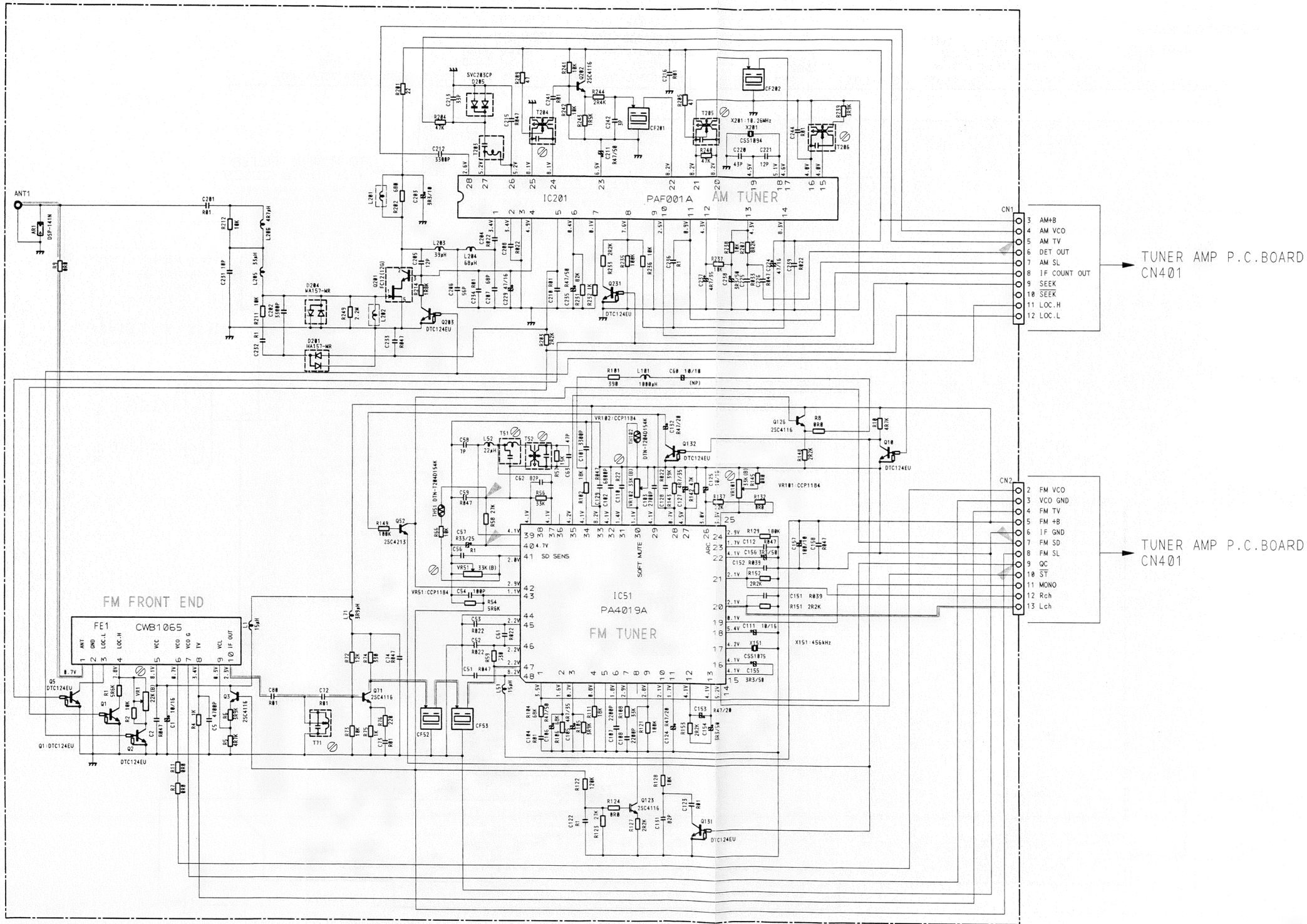


Fig. 28

FM/AM UNIT

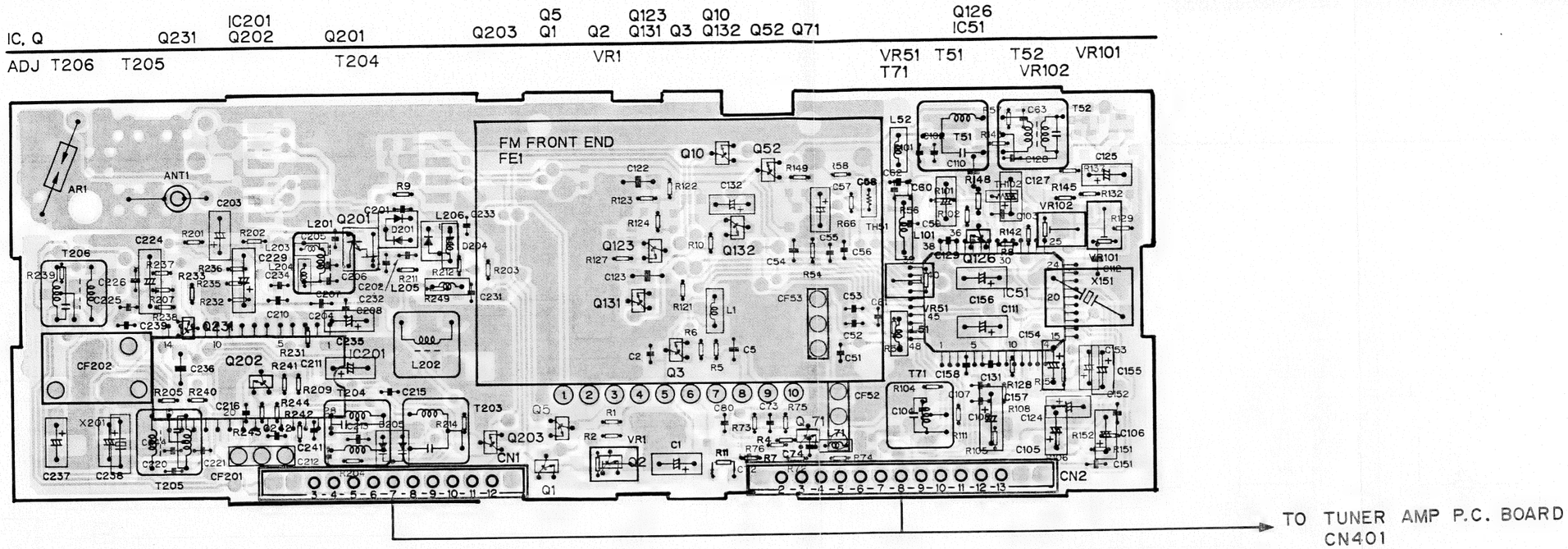


Fig. 29

16.2 POWER FILTER P.C. BOARD

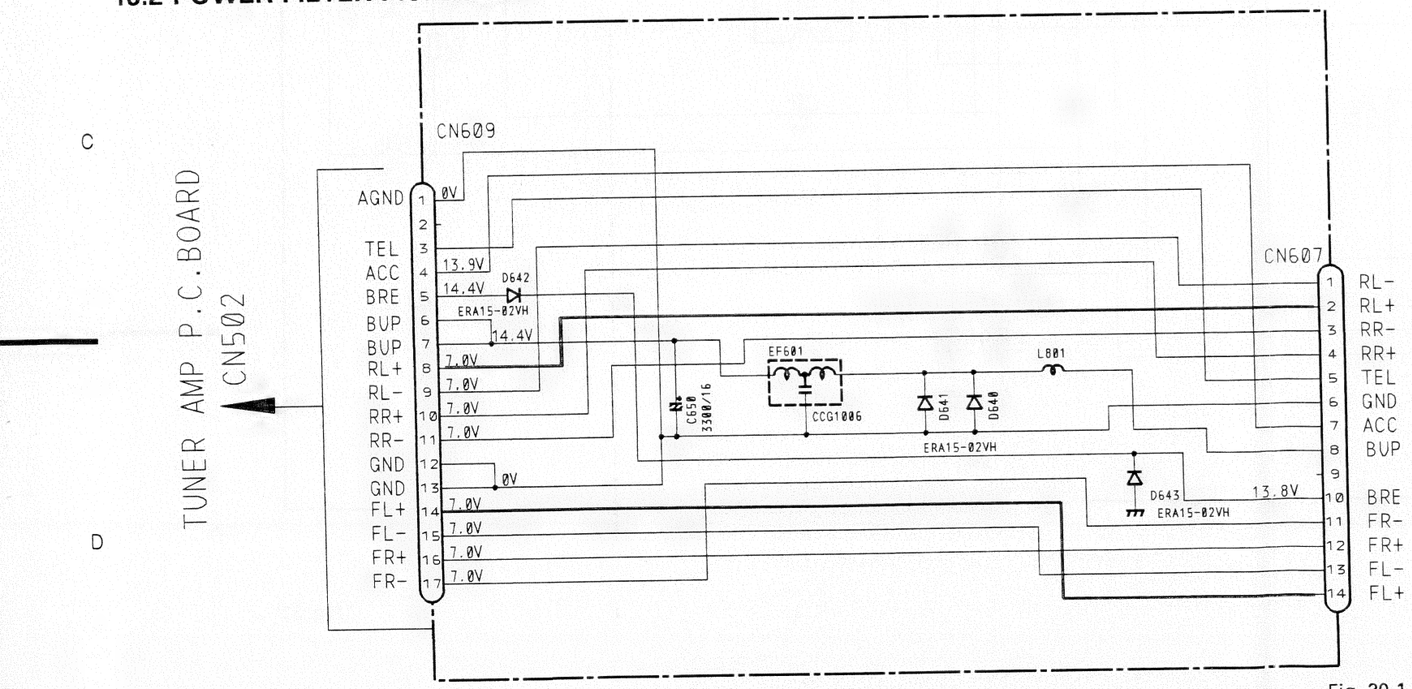


Fig. 30-1

POWER FILTER P.C. BOARD

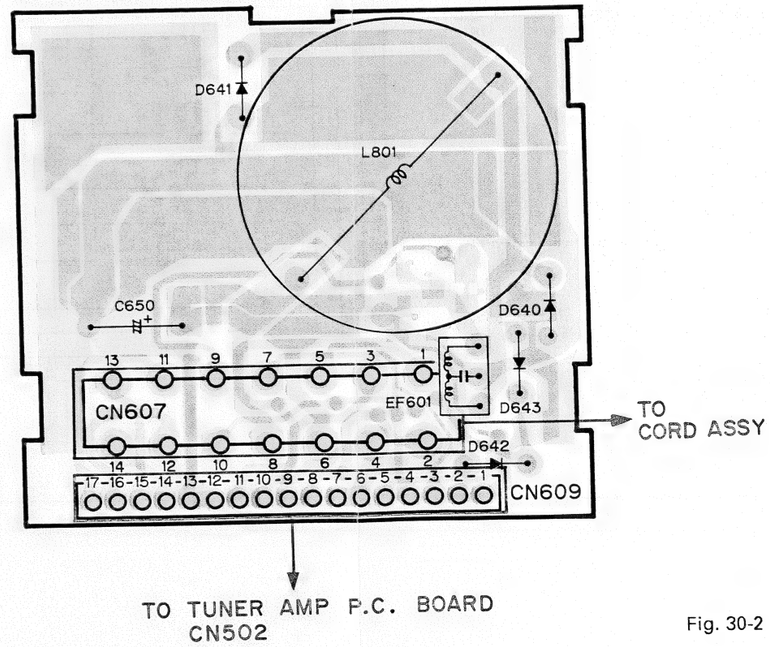


Fig. 30-2

FM/AM UNIT

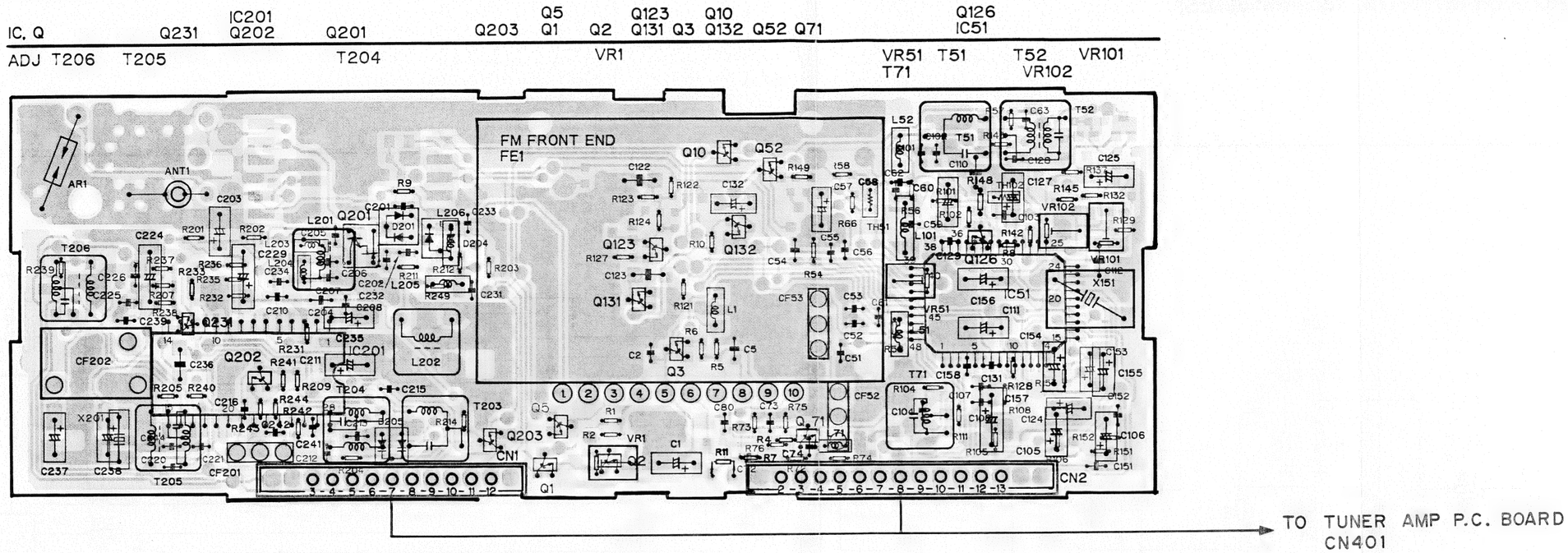


Fig. 29

16.2 POWER FILTER P.C. BOARD

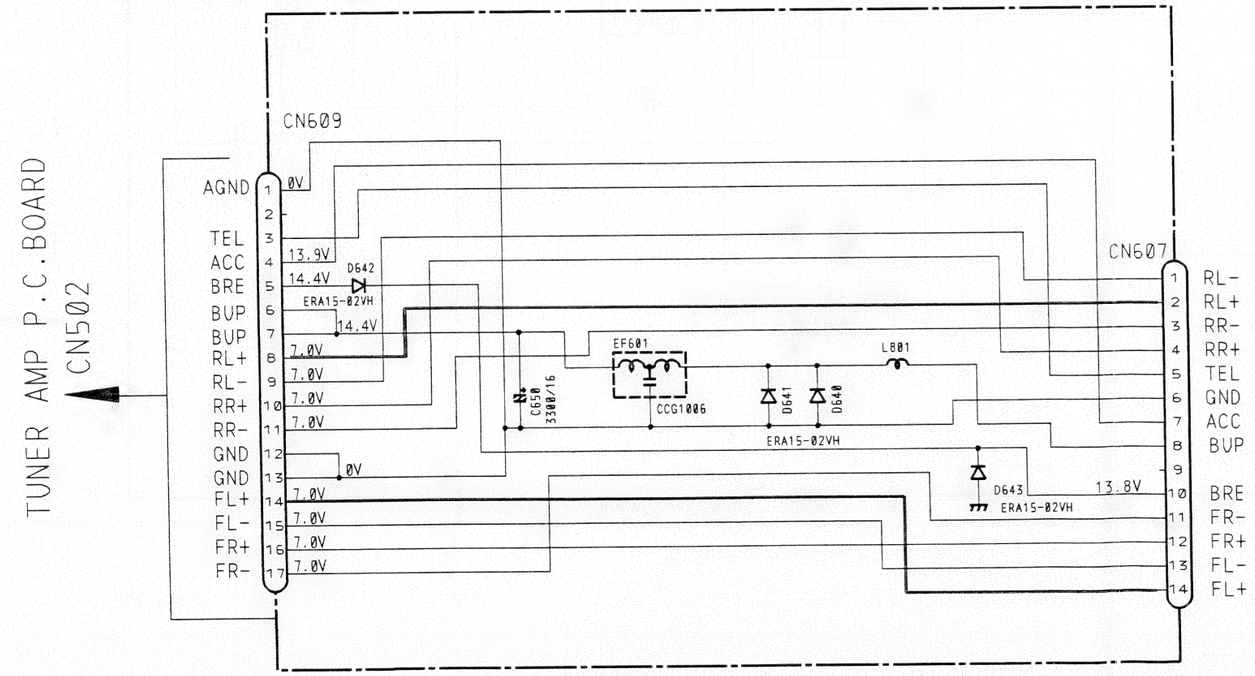


Fig. 30-1

POWER FILTER P.C. BOARD

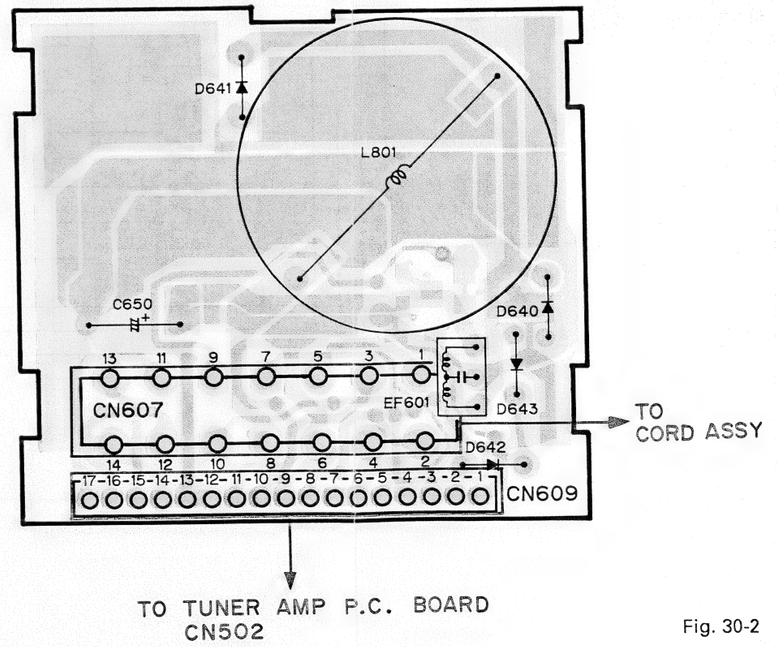


Fig. 30-2

16.3 ISOLATOR P.C. BOARD (KEH-M780/US, KEH-M8550/ES)

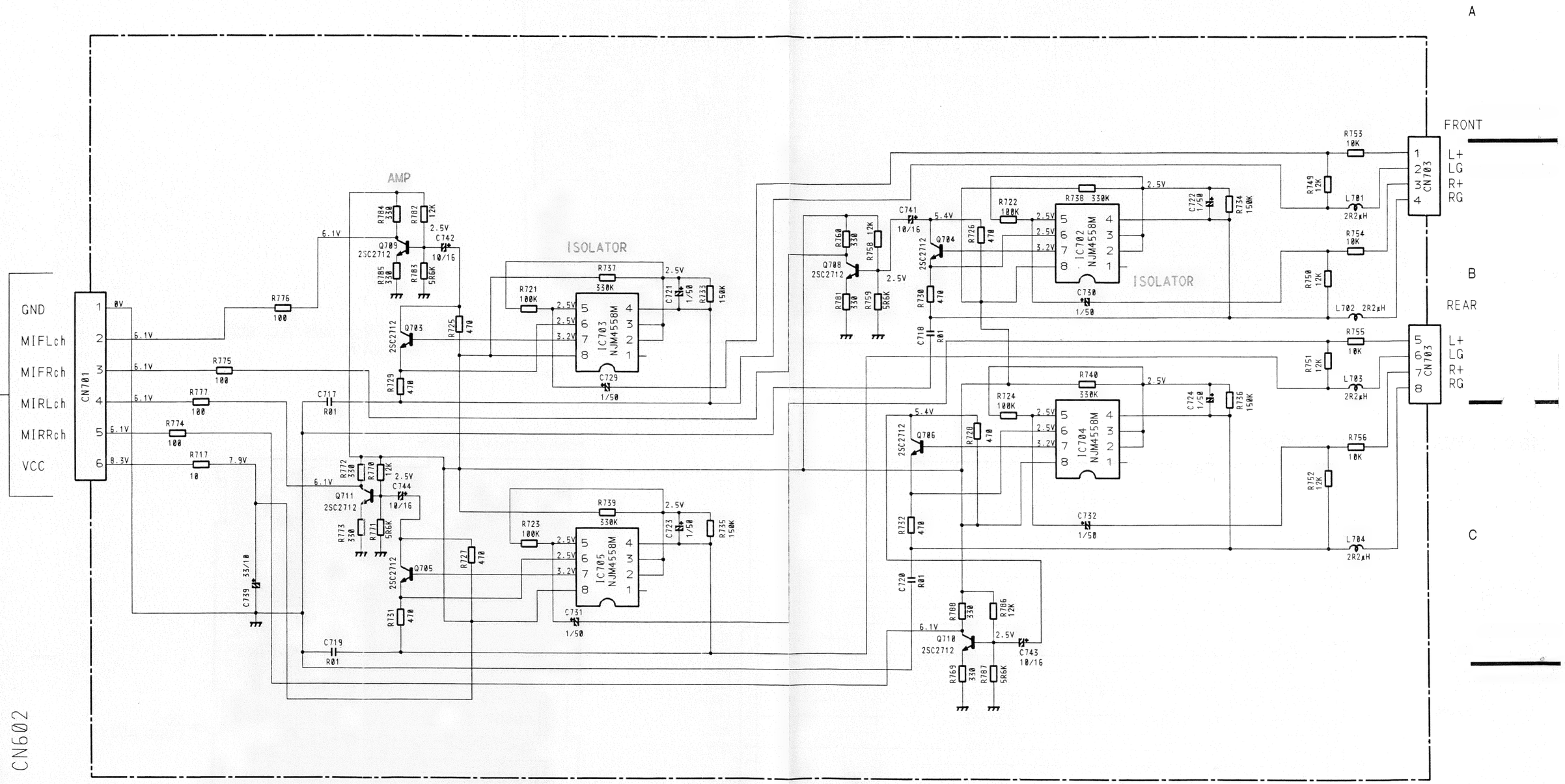
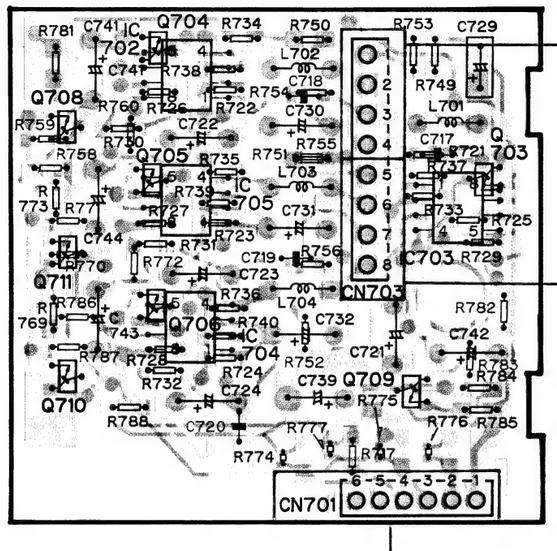


Fig. 31

ISOLATOR P.C. BOARD

IC. Q				
	Q708	Q704	IC702	
	Q711	Q705	IC705	Q703
	Q710	Q706	IC704	Q709 IC703



FRONT

1	L+
2	LG
3	R+
4	RG

REAR

5	L+
6	LG
7	R+
8	RG

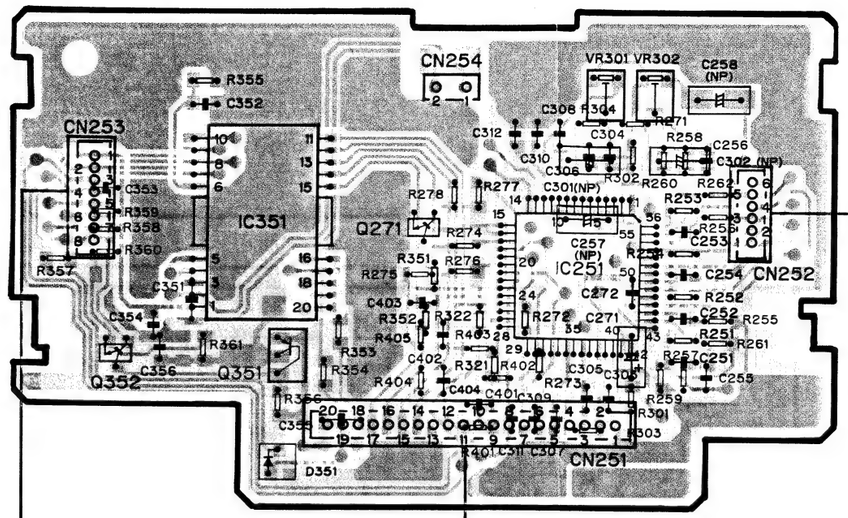
TO TUNER AMP P.C.BOARD CN602

Fig. 32

16.4 CASSETTE MECHANISM MODULE

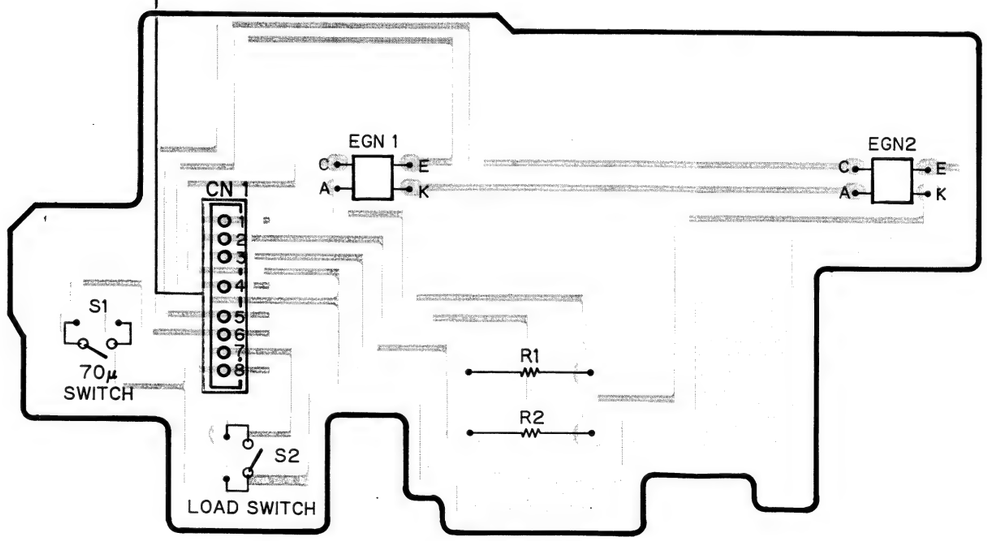
DECK UNIT

IC. Q	Q352	IC351	Q351	Q271	IC251
ADJ					VR301 VR302



TO TUNER AMP P.C. BOARD
CN604

MECHANISM P.C. BOARD



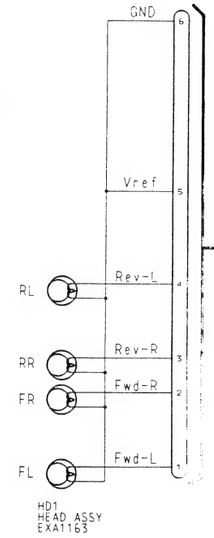


Fig. 33

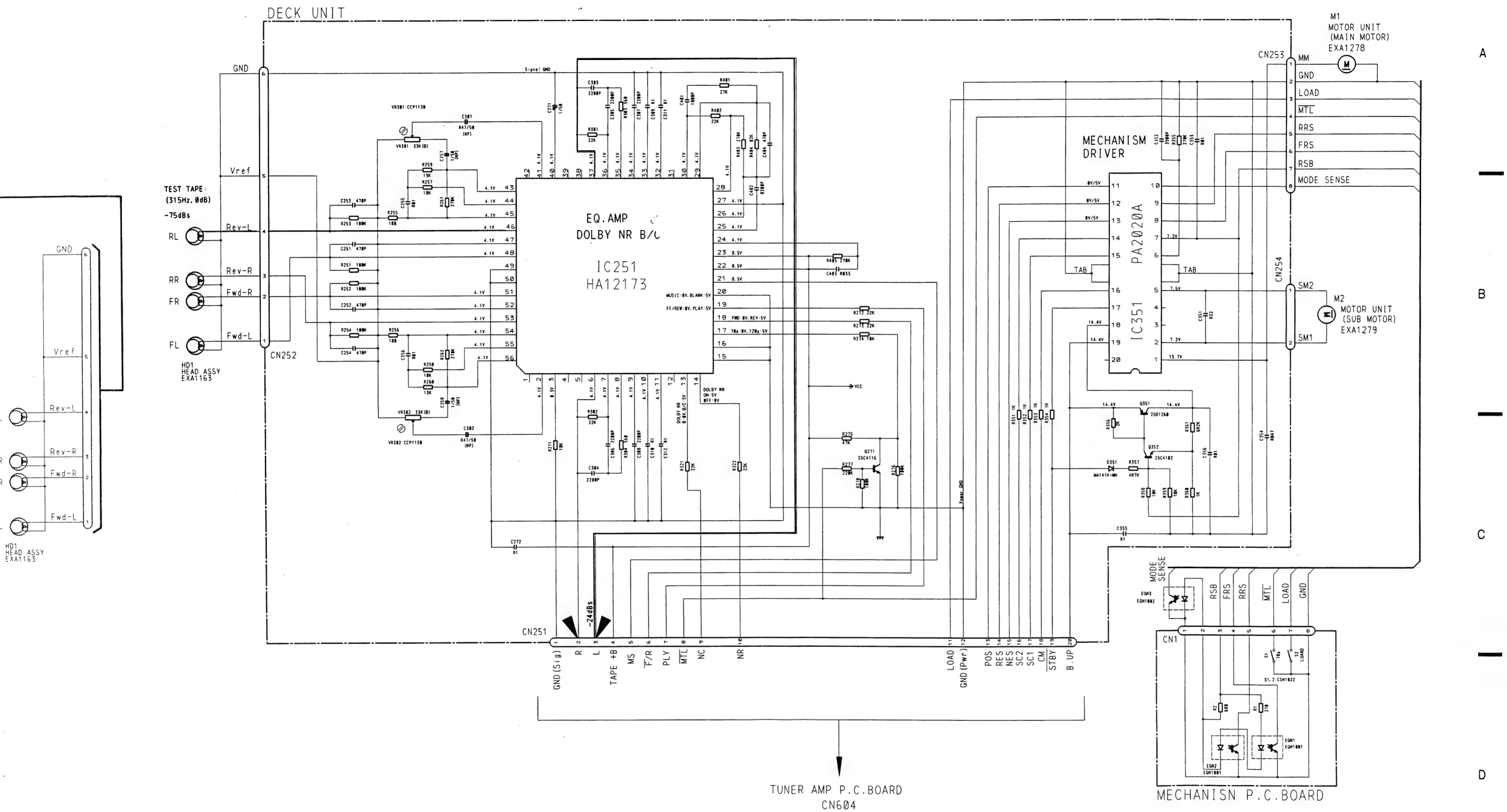
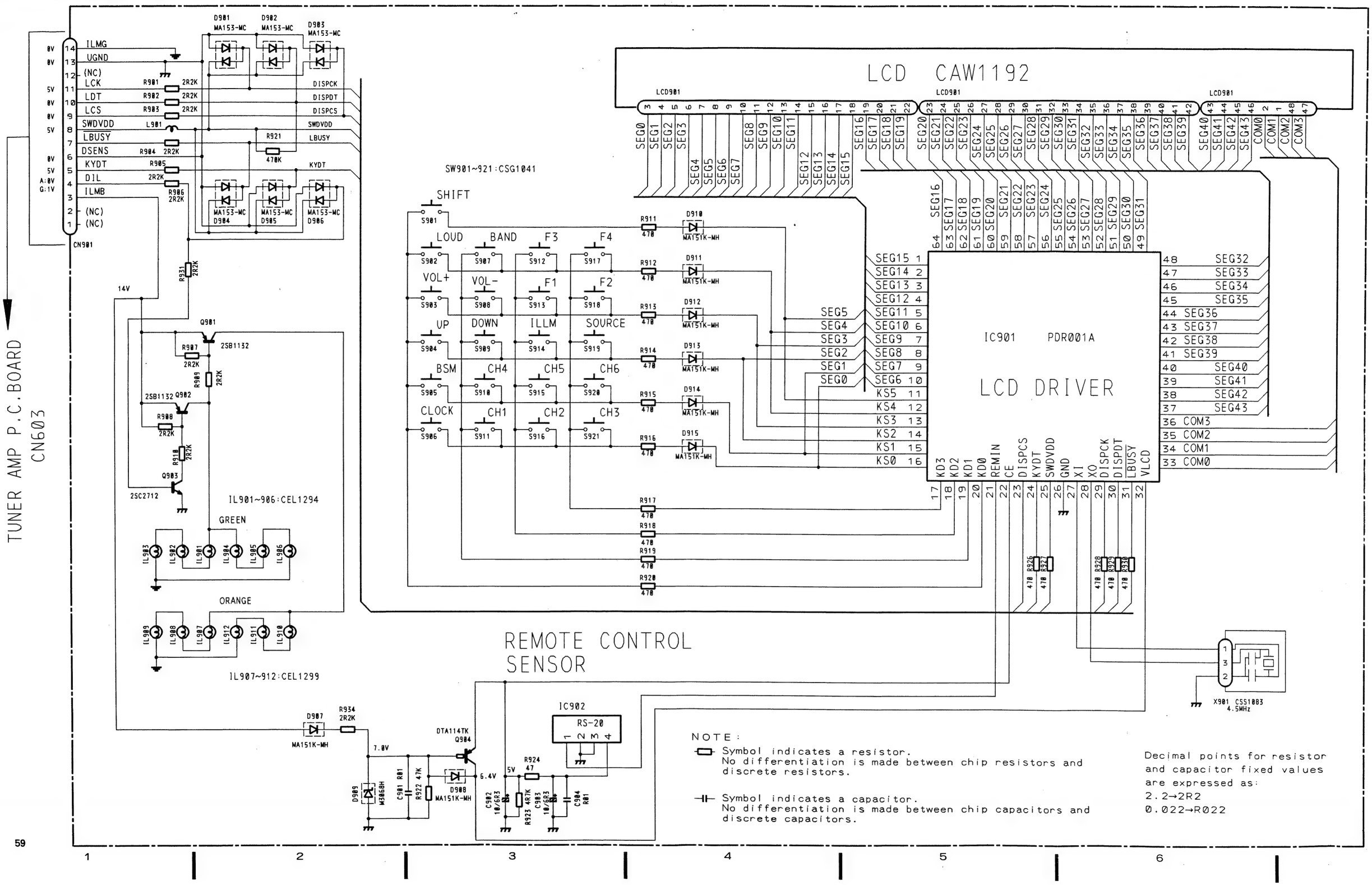

DECK UNIT
GND
Vref
Rev-L
Rev-R
Fwd-R
Fwd-L
TEST TAPE:
(315Hz, 0dB)
-75dBs
RL
RR
FR
FL
HD1
HEAD ASSY
EXA1163
CN252
EQ. AMP
DOLBY NR B/C
IC251
HA12173
VR301 CCP1130
VR302 CCP1130
VR301 53K(B)
VR302 53K(B)
-24dBs
CN251
GND(Sig)
R
L
TAPE +B
MS
F/R
PLY
MTL
NC
NR
LOAD
GND(Pwr)
POS
RES
NES
SC2
SC1
CM
STBY
B.UP
TUNER AMP P.C.BOARD
CN604
MECHANISM
DRIVER
IC351
PA2020A
CN253
CN254
MM
GND
LOAD
MTL
RRS
FRS
RSB
MODE SENSE
SM2
SM1
M1
MOTOR UNIT
(MAIN MOTOR)
EXA1278
M2
MOTOR UNIT
(SUB MOTOR)
EXA1279
TAB
MODE SENSE
CN1
MECHANISN P.C.BOARD

Fig. 34

16.5 KEY BOARD UNIT



NOTE:

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

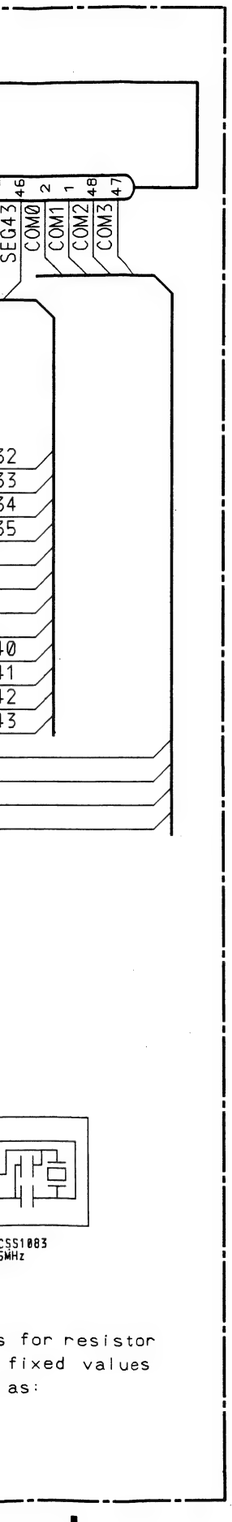
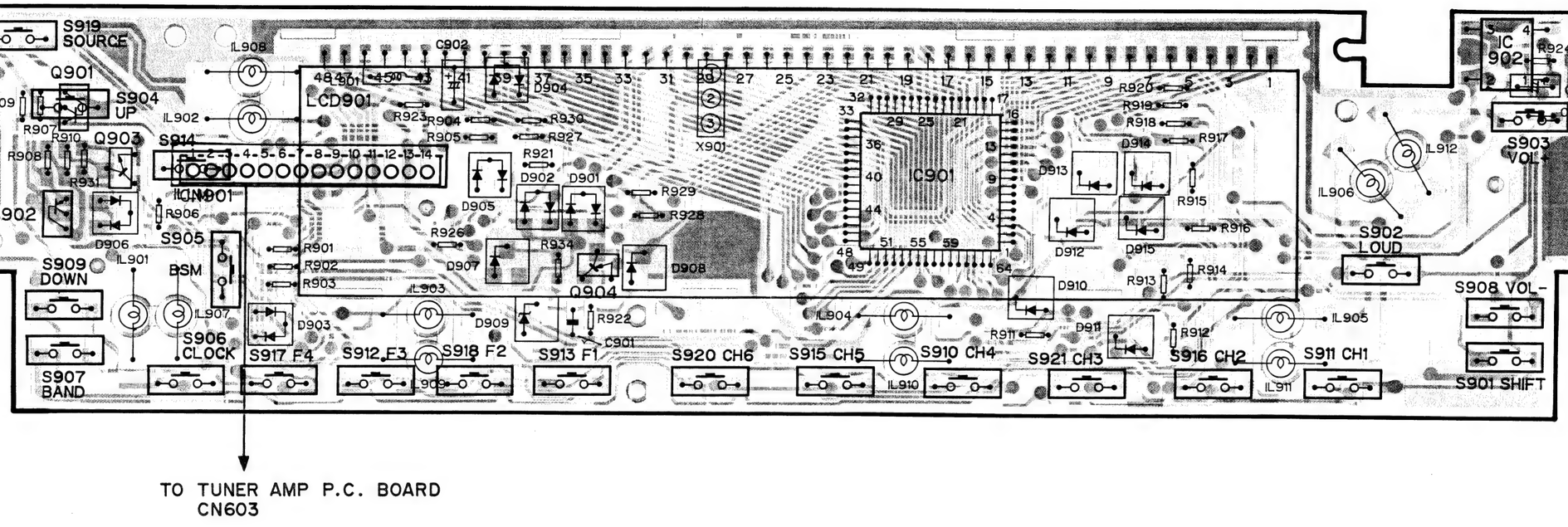


Fig. 35

Q901
IC. Q Q902 Q903 Q904 IC901 IC902



TO TUNER AMP P.C. BOARD
CN603

Fig. 36

17. EXPLODED VIEW

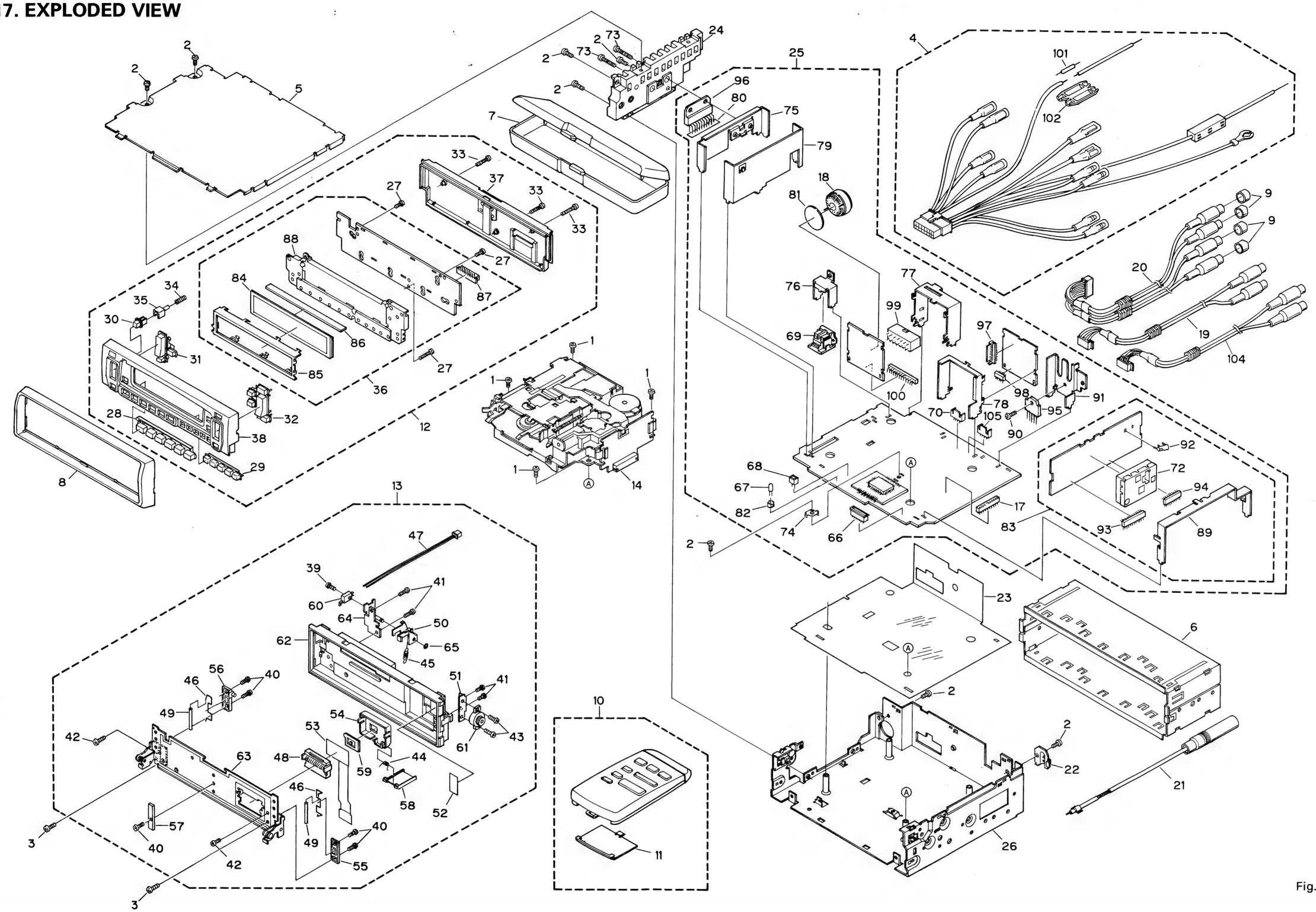


Fig. 37

● Parts List(KEH-M780/US)

Mark	No.	Description	Part No.
	1	Screw	BMZ26P050FMC
	2	Screw	BMZ30P050FMC
	3	Screw	CBA1233
	4	Cord Assy	CDE3768
*	5	Case	CNB1636
	6	Holder	CNC1484
	7	Case	CNS2055
	8	Panel	CNS2599
	9	Cap	CNV2680
	10	Remote Control Assy	CXA5364
	11	Battery Cover	CNS2224
	12	Detach Grille Assy	CXA4939
	13	Panel Assy	CXA4950
◉	14	Cassette Mechanism Module	EXK1930
	15	·····	
	16	·····	
	17	Connector(CN604)	CKS1730
	18	Coil(L801)	CTH1107
	19	Cord	CDE3771
	20	Cord	CDE3774
	21	Antenna Cable	CDH1117
*	22	Holder	CNC2913
*	23	Insulator	CNM3441
*	24	Heat Sink	CNR1256
◉	25	Tuner Amp Unit	CWM3190
*	26	Chassis Unit	CXA5163
	27	Screw	BPZ20P060FMC
	28	Button	CAC3312
	29	Button	CAC3313
	30	Button	CAC3316
	31	Button	CAC3491
	32	Button	CAC3492
	33	Screw	CBA1190
	34	Spring	CBH1476
	35	Lever	CNV3250
◉	36	Key Board Unit	CWM3201
*	37	Cover Unit	CXA4973
	38	Grille Unit	CXA5138
	39	Screw	CBA1070
	40	Screw	CBA1082
	41	Screw	CBA1183
	42	Screw	CBA1234
	43	Screw	CBA1235
	44	Spring	CBH1217
	45	Spring	CBH1395
	46	Spring	CBH1528
*	47	Connector	CDE3294
	48	Socket	CKS2293
	49	Roller	CLA2041
	50	Arm	CNC4379
	51	Holder	CNC4381
	52	Cushion	CNM3640
	53	P.C.Board	CNP3085
	54	Cover	CNS2502
	55	Holder	CNV2141
	56	Holder	CNV3247
	57	Guide	CNV3248
	58	Door	CNV3249
	59	Rubber	CNV3272
	60	Switch(Detach)	CSN-096
	61	Damper Unit	CXA4130
	62	Panel Unit	CXA4968
	63	Holder Unit	CXA4969
	64	Bracket Unit	CXA4971
	65	Washer	WT22D050D050
	66	Connector(CN603)	CKS1260
	67	Lamp(IL601)	CEL1025
	68	Plug(CN605)	CKS-783
	69	Connector(CN601)	CKS2105
*	70	Plug(CN501)	CKS1224
	71	·····	
	72	FM Front End(FE1)	CWB1065
	73	Screw	BMZ30P140FMC
*	74	Holder	CNC2218
*	75	Holder	CNC4370
*	76	Holder	CNC4371
*	77	Holder	CNC4372
*	78	Holder	CNC4373
*	79	Holder	CNC4374
*	80	Insulator	CNM3386
*	81	Insulator	CNM3634
	82	Holder	CNV1906
◉	83	FM/AM Unit	CWE1280
	84	LCD	CAW1192
*	85	Holder	CNC4382
	86	Spacer	CNM3626
	87	Connector	CNV3252
	88	Lens	CNV3473
*	89	Holder	CNC3506
	90	Screw	BMZ30P060FMC
*	91	Holder	CNC4396
	92	Antenna Jack(ANT1)	CKX1010
*	93	Plug(CN2)	CKS1620
*	94	Plug(CN1)	CKS1607
	95	IC(IC602)	TA8214K
	96	IC(IC510)	PA3027A
*	97	Plug(CN703)	CKS1228
*	98	Plug(CN701)	CKS1615
	99	Plug(CN609)	CKS1625
	100	Plug(CN607)	CKM1057
	101	Resistor	RS1/2P102JL
	102	Cap	CNS1472
	103	Fuse(7A)	CEK1023
	104	Cord	CDE3772
*	105	Plug(CN702)	CKS1733

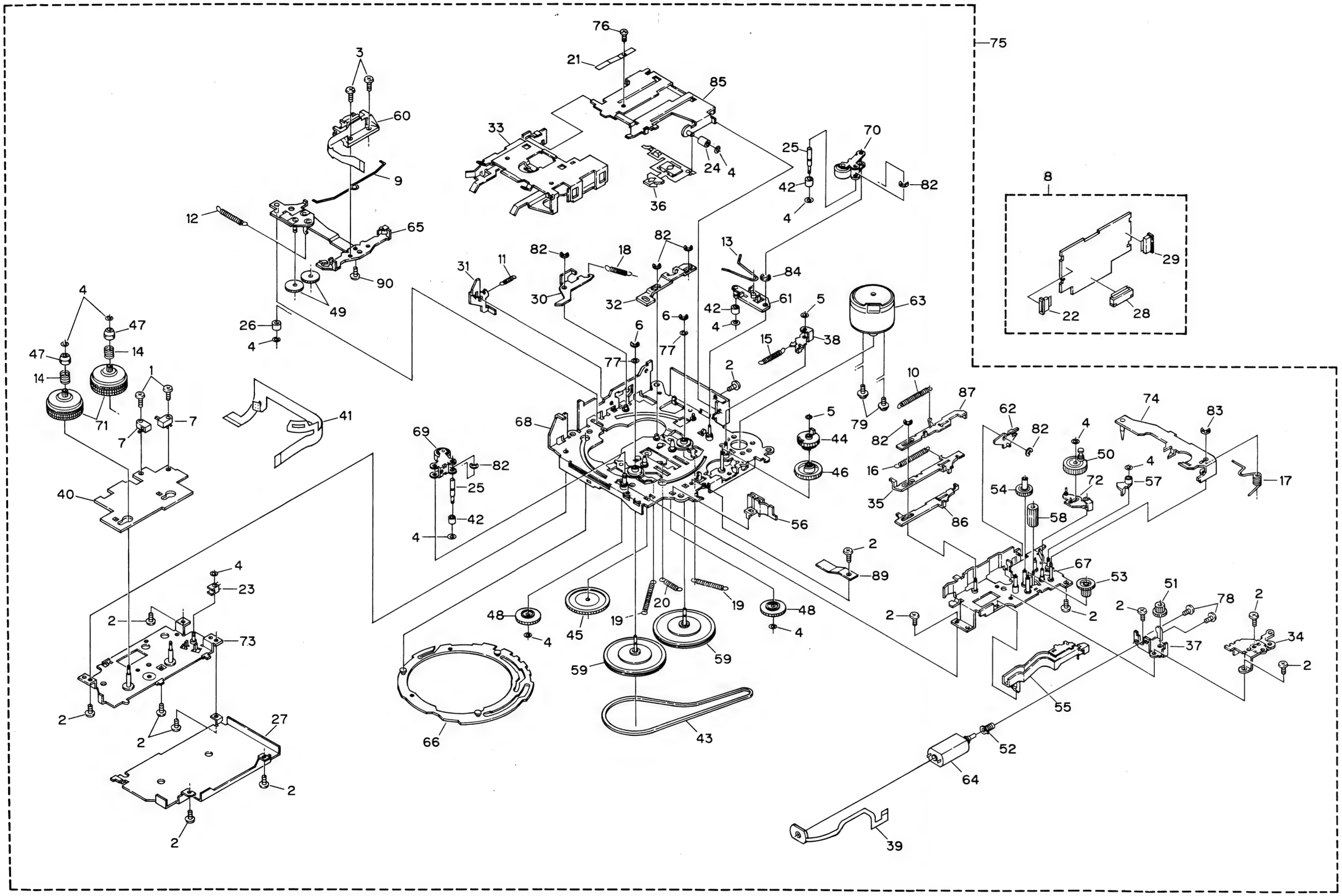
Fig. 37

● The KEH-M8550/ES and KEH-M8500/US Parts Lists enumerate the parts which differ from those enumerated in the KEH-M780/US Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-M780/US Parts List is given on page 65.

Mark	No.	Description	KEH-M780/US Part No.	KEH-M8550/ES Part No.	KEH-M8500/US Part No.
	9	Cap	CNV2680	CNV2680	·····
	10	Remote Control Assy	CXA5364	CXA4026	CXA5371
	12	Detach Grille Assy	CXA4939	CXA4941	CXA4940
	13	Panel Assy	CXA4950	CXA4952	CXA4951
	18	Coil(L801)	CTH1107	CTH1103	CTH1107
	19	Cord	CDE3771	CDE3771	CDE3846
	20	Cord	CDE3774	CDE3774	·····
◉	25	Tuner Amp Unit	CWM3190	CWM3192	CWM3191
*	26	Chassis Unit	CXA5163	CXA5163	CXA5164
	31	Button	CAC3491	CAC3383	CAC3491
	32	Button	CAC3492	CAC3384	CAC3492
◉	36	Key Board Unit	CWM3201	CWM3203	CWM3202
	38	Grille Unit	CXA5138	CXA5140	CXA5139
*	78	Holder	CNC4373	CNC4373	·····
*	97	Plug(CN703)	CKS1228	CKS1228	·····
*	98	Plug(CN701)	CKS1615	CKS1615	·····
	104	Cord	CDE3772	CDE3772	CDE3770

18. CASSETTE MECHANISM MODULE EXPLODED VIEW

●1L Mechanism



NOTES:

● *Parts marked b*

● *Parts marked b they may be un*

● Parts List

Mark	No.	Des
	1	Scr
	2	Scr
	3	Scr
	4	Wa
	5	Wa
	6	Wa
	7	Sw
◉	8	Dec
	9	Spr
	10	Spr
	11	Spr
	12	Spr
	13	Spr
	14	Spr
	15	Spr
	16	Spr
	17	Spr
	18	Spr
	19	Spr
	20	Spr
	21	Spr
	22	Cor
	23	Pla
	24	Rol
	25	Sh
	26	Rol
	27	Co
	28	Co
	29	Co
	30	Ar
	31	A
	32	Lev
	33	Hol
	34	Co
	35	Lev
	36	Lev
	37	Bra
	38	Arr
	39	P.C
	40	P.C
	41	P.C
	42	Rol
	43	Bel
	44	Ge
	45	Ge

Fig. 38

NOTES:
- *Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*
- *Parts marked by " ◉ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

● Parts List

Mark	No.	Description	Part No.
	1	Screw	BMZ20P060FMC
	2	Screw	BSZ20P040FMC
	3	Screw	CBA1015
	4	Washe	CBF1037
	5	Washer	CBF1038
	6	Washer	CBG1003
	7	Switch	CSN1022
◉	8	Deck Unit	CWM3114
	9	Spring	EBH1458
	10	Spring	EBH1434
	11	Spring	EBH1435
	12	Spring	EBH1437
	13	Spring	EBH1438
	14	Spring	EBH1439
	15	Spring	EBH1440
	16	Spring	EBH1441
	17	Spring	EBH1442
	18	Spring	EBH1443
	19	Spring	EBH1446
	20	Spring	EBH1452
	21	Spring	EBL1016
	22	Connector(CN252)	CKS2127
	23	Photo-Interrupter	EGN1002
	24	Roller	ELA1281
	25	Shaft	ELA1282
	26	Roller	ELA1283
	27	Cover	ENC1307
	28	Connector(CN251)	CKS1711
	29	Connector(CN253)	CKS2129
	30	Arm	ENC1310
	31	Arm	ENC1311
	32	Lever	ENC1312
	33	Holder	ENC1313
	34	Cover	ENC1314
	35	Lever	ENC1315
	36	Lever	ENC1316
	37	Bracket	ENC1317
	38	Arm	ENC1335
	39	P.C.Board	ENP1109
	40	P.C.Board	ENP1106
	41	P.C.Board	ENP1107
	42	Roller	ENR1023
	43	Belt	ENT1014
	44	Gear	ENV1346
	45	Gear	ENV1347
	46	Gear	ENV1348
	47	Collar	ENV1349
	48	Gear	ENV1350
	49	Gear	ENV1351
	50	Gear	ENV1354
	51	Gear	ENV1355
	52	Gear	ENV1357
	53	Gear	ENV1358
	54	Gear	ENV1359
	55	Clamper	ENV1360
	56	Clamper	ENV1361
	57	Arm	ENV1362
	58	Gear	ENV1363
	59	Flywheel	ENV1368
	60	Head Assy	EXA1163
	61	Arm Unit	EXA1276
	62	Arm Unit	EXA1277
	63	Motor Unit	EXA1278
	64	Motor Unit	EXA1279
	65	Head Base Unit	EXA1305
	66	Gear Unit	EXA1281
	67	Guide Unit	EXA1282
	68	Chassis Unit	EXA1283
	69	Pinch Roller Unit	EXA1284
	70	Pinch Roller Unit	EXA1285
	71	Reel Unit	EXA1286
	72	Arm Unit	EXA1287
	73	Sub Chassis Unit	EXA1288
	74	Arm Unit	EXA1289
	75	Spare Unit	EXA1293
	76	Screw	HBA-147
	77	Washer	HBF-179
	78	Screw	JGZ20P025FNI
	79	Screw	PMS20P025FMC
	80	•••••	
	81	•••••	
	82	Washer	YE15FUC
	83	Washer	YE20FUC
	84	Washer	YE25FUC
	85	Frame Unit	EXA1290
	86	Lever	ENC1308
	87	Lever	ENC1309
	88	•••••	
	89	Spring	EBL1015
	90	Screw	JFZ17P025FNI

19. PACKING METHOD

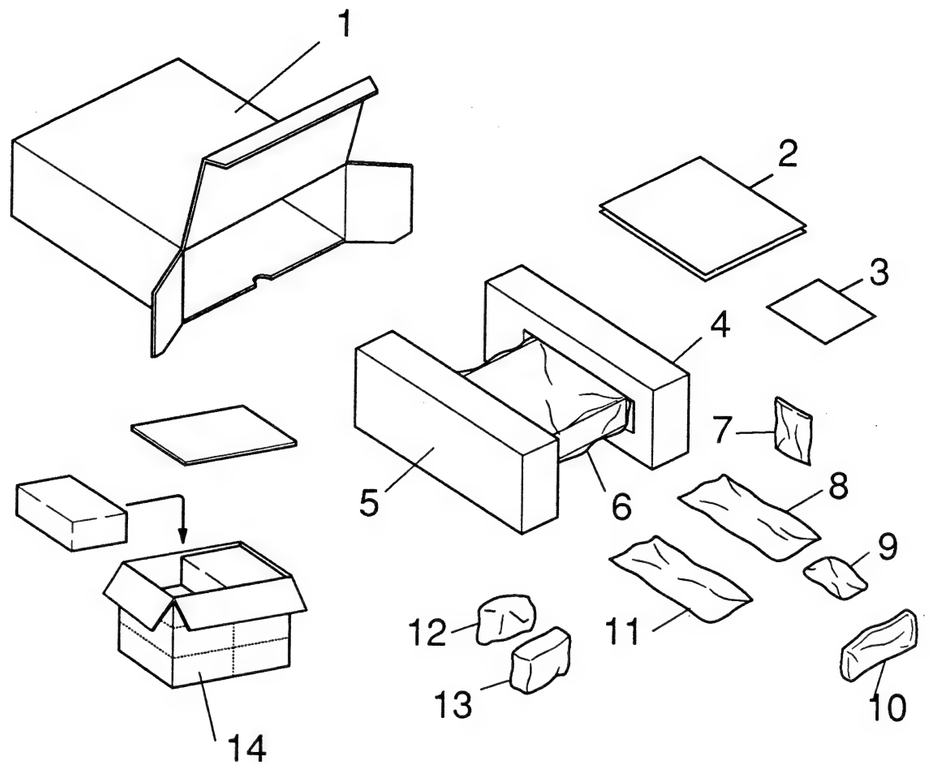


Fig. 39

● Parts List

*:Non spare part

Mark No.	Description	KEH-M780/US Part No.	KEH-M8550/ES Part No.	KEH-M8500/US Part No.
	1 Carton	CHG2266	CHG2268	CHG2267
	2-1 Owner's Manual	CRB1258	CRD1607	CRB1259
*	2-2 Card	·····	·····	ARY1048
*	3 Warranty Card	CRY1053	·····	·····
	4 Protector	CHP1506	CHP1506	CHP1506
	5 Protector	CHP1505	CHP1505	CHP1505
	6 Cover	CEG1092	CEG1092	CEG1092
	7 Accessory Assy	CEA1473	CEA1473	CEA1473
	8 Cord Assy	CDE3768	CDE3768	CDE3768
	9 Screw Assy	CEA1761	CEA1761	CEA1761
	10 Case	CNS2055	CNS2055	CNS2055
	11 Accessory Assy	CEA1800	CEA1800	CEA1800
	12 Accessory Assy	CEA1784	CEA1784	CEA1784
	13 Remote Control Assy	CXA5364	CXA4026	CXA5371
	14 Contain Box	CHL2266	·····	CHL2267

7 Accessory Assy CEA1473		
Mark No.	Description	Part No.
*	7-1 Battery	CEX1006
	7-2 Fastener(Rough)	CNM3639
	7-3 Fastener(Soft)	CNM3630
*	7-4 Polyethylene Bag	CEG-127

9 Screw Assy CEA1761		
Mark No.	Description	Part No.
	9-1 Screw(×4)	BMZ50P080FMC
	9-2 Screw	CBA-102
	9-3 Screw	CBA1002
	9-4 Screw(×4)	CMZ50P080FMC
	9-5 Nut(×2)	NF50FMC
	9-6 Polyethylene Bag	CEG-127

11 Accessory Assy CEA1800		
Mark No.	Description	Part No.
	11-1 Strap	CNF-111
	11-2 Bush	CNV1009
*	11-3 Polyethylene Bag	CEG-158

12 Accessory Assy CEA1784		
Mark No.	Description	Part No.
	12-1 Spring	CBH-865
	12-2 Handle(×2)	CNC4800
*	12-3 Polyethylene Bag	E36-613

2-1 Owner's Manual		
Part No.	Model	Language
CRB1258	KEH-M780/US	English
CRD1607	KEH-M8550/ES	English, French, Spanish, Arabic
CRB1259	KEH-M8500/US	English

20. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

Chip Resistor

RS1/□S□□□J,RS1/□□S□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Circuit Symbol & No.	Part Name	Part No.
Unit Number :		
Unit Name : FM/AM Unit		
MISCELLANEOUS		
IC 51		PA4019A
IC 201		PAF001A
Q 1 5		DTC124EU
Q 2 10 131 132 203		DTC124EU
Q 3 71 123		2SC4116
Q 52		2SC4213
Q 126		2SC4116
Q 201		FC12(12G)
Q 202		2SC4116
Q 231		DTC124EU
D 201 204		MA157-MR
D 205		SVC203CP
L 1	Inductor	LCTA150K3225
L 51	Inductor	LCTA150K3225
L 52	Inductor	LCTA220K3225
L 71	Inductor	LCTB3R9K2125
L 101	Inductor	LCTA102K4532
L 201	Coil	CTB1086
L 202	Coil	CTB1082
L 203	Inductor	LCTB390K2125
L 204	Inductor	LCTB680K2125
L 205	Inductor	CTF1198
L 206	Inductor	CTF1197
T 51	Coil	CTE1067
T 52	Coil	CTE1068
T 71	Coil	CTE1058
T 203	Coil	CTB1087
T 204	Coil	CTE1064
T 205	Coil	CTE1060
T 206	Coil	CTE1061
TH 51 102	Thermister	DTN-T204D154K
CF 52 53	Ceramic Filter	CTF1247
CF 201	Crystal Filter	CTF1262
CF 202	Ceramic Filter	CTF1191
X 151	Ceramic Resonator	CSS1075
X 201	Crystal Resonator	CSS1094
VR 1	Semi-fixed 22kΩ(B)	CCP1183
VR 51 101 102	Semi-fixed 33kΩ(B)	CCP1184
AR 1	Surge Protector	DSP-141N
FE 1	FM Front End	CWB1065

Circuit Symbol & No.	Part Name	Part No.
RESISTORS		
R 1		RS1/16S562J
R 2 66 73		RS1/16S103J
R 4		RS1/16S102J
R 5		RS1/16S472J
R 6		RS1/16S392J
R 7 8 9		RS1/16S0R0J
R 10		RS1/16S472J
R 11		RS1/10S0R0J
R 54		RS1/10S562J
R 56		RS1/16S333J
R 57		RS1/16S153J
R 58		RS1/16S273J
R 59 74		RS1/16S331J
R 72		RS1/16S123J
R 75		RS1/16S102J
R 76		RS1/16S221J
R 101		RS1/10S391J
R 102 111		RS1/16S183J
R 104 106		RS1/16S683J
R 105		RS1/16S392J
R 108		RS1/16S333J
R 121 149		RS1/16S104J
R 122		RS1/16S124J
R 123		RS1/16S273J
R 124 132		RS1/16S0R0J
R 127 153		RS1/16S222J
R 128		RS1/16S103J
R 129		RS1/16S184J
R 137		RS1/16S223J
R 142		RS1/16S473J
R 143		RS1/16S393J
R 145		RS1/16S0R0J
R 148		RS1/10S222J
R 151 152		RS1/16S222J
R 201		RS1/16S220J
R 202		RS1/10S681J
R 203		RS1/16S222J
R 204		RS1/16S473J
R 205 209		RS1/16S470J
R 207		RS1/10S822J
R 211 212 236 237 238		RS1/16S103J
R 214		RS1/16S182J
R 231		RS1/16S823J
R 232		RS1/10S102J
R 233		RS1/16S222J
R 235		RS1/16S104J
R 239		RS1/16S392J
R 240		RS1/16S473J
R 241 242		RS1/16S103J
R 243		RS1/16S152J
R 244		RS1/16S242J
R 249		RS1/16S225J

======Circuit Symbol & No.	Part Name======	Part No.
CAPACITORS		
C 1 111 125		CEV100M16
C 2 51 59		CKSRYF473Z25
C 5		CKSQYB472K50
C 52 53 61		CKSRYB223K25
C 54		CCSQCH101J50
C 56		CKSRYF104Z25
C 57		CSZSR33M25
C 58		CCSRCH070D50
C 60		CEVNP100M10
C 62		CCSRPH820J50
C 63		CCSRPH470J50
C 72 73 80 104		CKSRYB103K50
C 74 129 158		CKSRYF473Z25
C 101		CKSRYB332K50
C 102		CKSRYB682K50
C 103		CKSQYB272K50
C 105 127		CEV4R7M35
C 106		CEVR47M50
C 107 108		CKSRYB222K50
C 110		CKSYB224K25
C 112		CKSYB473K50
C 122		CKSYB104K50
C 123		CKSYB103K50
C 124 132 153		CSZSR47M20
C 128		CKSRYB223K25
C 131		CCSRCH820J50
C 151 152		CKSQYB393K25
C 154 155 156		CEV3R3M50
C 157		CEV101M10
C 201 216 241		CKSRYB103K50
C 202 212		CKSRYB332K50
C 203		CSZS3R3M10
C 204		CKSQYB223K25
C 205 221		CCSRCH120J50
C 206		CCSRCH560J50
C 207		CCSRCH680J50
C 208		CKSRYB223K25
C 210		CKSQYB103K50
C 211 235		CEVR47M50
C 213		CCSQCH330J50
C 215		CKSRYF473Z25
C 220		CCSRCH430J50
C 224 229		CEV470M16
C 225		CKSQYB333K25
C 226		CKSQYB473K25
C 231		CCSRCH100D50
C 232 234 244		CKSRYB103K50
C 233		CKSRYF473Z25
C 236		CKSYB104K50
C 237		CEV4R7M35
C 238		CEV3R3M50
C 239		CKSRYB223K25
C 242		CCSRCH030C50

Unit Number :
Unit Name : Deck Unit

MISCELLANEOUS

IC 251		HA12173
IC 351		PA2020A
Q 271		2SC4116
Q 351		2SB1260
Q 352		2SC4102
D 351		MA141K-MH
VR 301 302	Semi-fixed 33kΩ(B)	CCP1130

======Circuit Symbol & No.	Part Name======	Part No.
RESISTORS		
R 251 252 253 254		RS1/10S104J
R 255 256		RS1/10S181J
R 257 258		RS1/10S183J
R 259 260		RS1/10S133J
R 261 262		RS1/10S274J
R 271		RS1/10S183J
R 272 273 321 322		RS1/10S223J
R 274		RS1/10S103J
R 275		RS1/10S473J
R 276 278		RS1/10S104J
R 277		RS1/10S224J
R 301 302 402		RS1/10S223J
R 303 304		RS1/10S561J
R 351 352		RS1/10S102J
R 353 354		RS1/10S102J
R 355		RS1/10S274J
R 356		RS1/10S202J
R 357		RS1/10S472J
R 358 359		RS1/10S103J
R 360		RS1/10S102J
R 361		RS1/10S622J
R 401		RS1/10S273J
R 403 405		RS1/10S274J
R 404		RS1/10S823J
CAPACITORS		
C 251 252 253 254		CKSQYB471K50
C 255 256 353		CKSQYB103K50
C 257 258		CEVNP010M50
C 271		CEV010M50
C 272		CKSQYB104K25
C 301 302		CEVNPR47M50
C 303 304 305 306 307 308		CKSQYB222J50
C 309 310 311 312		CKSQYB104K25
C 351		CKSYB224K25
C 352		CKSQYB392K50
C 354		CKSQYB473K50
C 355		CKSYB104K50
C 356		CKSQYB103K50
C 401		CKSQYB182K50
C 402		CKSQYB822K50
C 403		CKSQYB333K50
C 404		CKSQYB471K50

Tuner Amp Unit
Consists of Tuner Amp P.C.Board Power Filter P.C.Board Isolator P.C.Board

Unit Number :
Unit Name : Tuner Amp Unit(KEH-M780/US)

MISCELLANEOUS

IC 451		LC72140M
IC 501		PMJ002A
IC 502 702 703 704 705		NJM4558M
IC 503		NJM4558M
IC 504		TC9188F1
IC 505 506		NJM2082M
IC 507 509		NJM2068MD1
IC 508		TC4052BF
IC 510		PA3027A
IC 601		PML001A

======Circuit Symbol & No. Part Name======	Part No.
IC 602	TA8214K
IC 603	S-80734AN-DY
IC 604	PD4411A
IC 701	NJM4558M
Q 421 422	DTC143TK
Q 423 424 461 462 801 802	DTC143TK
Q 452 454	2SK208
Q 453 456 457 458 601	2SC2712
Q 455 602 606 610 703 704 705 706 708	2SC2712
Q 464	2SC2498
Q 501 502	DTC314TK
Q 503 612 620	DTA124EK
Q 504 615 616	DTC124EK
Q 505	2SD1684
Q 603	2SD1760F5
Q 604	2SC3295
Q 605 617	2SB1243
Q 607	DTB123EK
Q 608 609 613	DTC124EK
Q 611 614	2SA1162
Q 622	2SC3295
Q 701	DTC314TK
Q 702	DTC314TK
Q 709 710 711	2SC2712
D 451 452	MA3027H
D 453 454 455	MA151WK-MT
D 501	MA3047M
D 502 503 504 505 506 507 508 509 604	ERA15-02VH
D 511	MA3091L
D 601	MA3082L
D 603	MA3075H
D 605 609	MA151WK-MT
D 606	MA3056M
D 610	MA3082H
D 611 612 613 614 615 616 617 618 619 620	MA153-MC
D 621 622 623 624	MA153-MC
D 625 629	MA110-1A
D 627	MA8062M
D 640 641 642 643	ERA15-02VH
L 451 452 601 602 603 Ferri-Inductor	LAU2R2M
L 701 702 703 704 Ferri-Inductor	LAU2R2M
L 453 Ferri-Inductor	CTF-157
L 801 Coil	CTH1107
TC 601 Trimmer	CCG1002
X 451 Crystal Resonator	CSS1030
X 601 Crystal Resonator	CSS1023
S 601 Switch(RESET)	CSG1046
S 602 Switch(MAIN IN)	CSH1009
IL 601 Lamp 14V 40mA	CEL1025
EF 601 Filter	CCG1006
BZ 601 Buzzer	CPV1011
FM/AM Unit	

RESISTORS

R 421 422 423 424	RS1/10S392J
R 425 426 503 504	RS1/10S272J
R 427 428 615	RS1/10S153J
R 451 452 453 459 481 482 536 603 608 627	RS1/10S473J
R 454 455 456 462	RS1/10S222J
R 457 463 474 475 649 669	RS1/10S222J
R 458 464 466 483 484 574	RS1/10S102J
R 460 602 607 620 639 647	RS1/10S473J
R 465 480 495 510 513 514 564 618 672 676	RS1/10S472J
R 467	RS1/10S152J
R 468 478 616	RS1/10S103J
R 469	RS1/10S102J
R 470 471 638 687 700	RS1/10S102J
R 472	RS1/10S102J
R 473	RS1/10S102J

======Circuit Symbol & No. Part Name======	Part No.
R 477	RS1/10S472J
R 479 515 516	RS1/10S333J
R 485 486 487 488	RS1/10S272J
R 489 490	RS1/10S104J
R 491 492	RS1/10S103J
R 493	RS1/10S563J
R 496	RS1/10S182J
R 497	RS1/10S821J
R 498	RS1/10S101J
R 499 505 506 604	RS1/10S101J
R 501 502	RS1/10S563J
R 507 508	RS1/10S151J
R 509	RS1/10S152J
R 512	RS1/10S183J
R 517	RS1/10S103J
R 525 526 527 528	RS1/10S271J
R 533 534 535 560 561 565 605	RS1/10S472J
R 537 538 539 540 541 542 721 722 723	RS1/10S104J
R 543	RS1/10S105J
R 544 545 612 613 617 671	RS1/10S103J
R 548 549	RS1/10S105J
R 550 551	RS1/10S153J
R 552 553 611 648 862	RS1/10S223J
R 554 555	RS1/10S821J
R 556 557 601 606 621	RS1/10S223J
R 566 567 568 569 570 571 572 573	RS1/10S2R2J
R 595	RS1/10S331J
R 596 619 666 690 691 858	RS1/10S102J
R 597	RS1/10S181J
R 609	RS1/10S183J
R 610 670	RS1/2S681J
R 614	RS1/10S221J
R 623 624 625 626 693	RS1/10S221J
R 628 629 630 631	RS1/10S682J
R 632 633 634 635 636 725	RS1/10S471J
R 637	RS1/10S124J
R 640 642	RS1/10S473J
R 644	RS1/10S473J
R 646	RS1/10S683J
R 650 651 652 653	RS1/10S681J
R 654 655 656 657 658 659 660 661 662 663	RS1/10S472J
R 673 674 675 680 681 682 683 684	RS1/10S472J
R 664 665 765 766 767 768	RS1/10S473J
R 667	RS1/10S472J
R 668	RS1/10S0R0J
R 677 678	RS1/10S472J
R 679	RS1/10S473J
R 685 686 694 695 696 761 762	RS1/10S472J
R 688 689 699 711 764 854	RS1/10S473J
R 701 702	RS1/10S224J
R 703 704 709	RS1/10S223J
R 705 706	RS1/10S153J
R 707 708	RS1/10S821J
R 710	RS1/10S223J
R 717	RS1/10S100J
R 724	RS1/10S104J
R 726 727 728 729 730 731 732	RS1/10S471J
R 733 734 735 736	RS1/10S154J
R 737 738 739 740	RS1/10S334J
R 749 750 751 752	RS1/10S123J
R 753 754 755 756	RS1/10S103J
R 758 770 782 786	RS1/10S123J
R 759 771 783 787	RS1/10S562J
R 760 772	RS1/10S331J
R 763	RS1/10S0R0J
R 769 773 781 784 785 788	RS1/10S331J
R 774 775 776 777 Chip Reistor 100Ω	CCN1072
R 779	RS1/10S102J
R 801 802	RS1/10S393J
R 803 804	RS1/10S392J

======Circuit Symbol & No.	Part Name======	Part No.
R 805 806		RS1/10S273J
R 856		RS1/10S102J
R 861		RS1/10S473J
R 873		RS1/10S102J
R 880 881 882 883		RS1/10S101J
R 885		RS1/10S0R0J
R 886		RS1/10S472J
CAPACITORS		
C 421 422		CEAS4R7M35
C 451 452		CCSQCH270J50
C 453 471 537 538 566 567 614 633 636 640		CCSQCH101J50
C 454 592 603		CEA4R7M16LS2
C 455 458 461 506 643 717 718 719 720		CKSQYB103K25
C 457	4.7μF/16V	CCH1005
C 459	Chip Capacitor 0.047μF	CCG1008
C 460		CFTNA474J50
C 462		CCSQSL561J50
C 463 464 559 855		CKSQYB223K25
C 465		CCSQCH101J50
C 467 468		CEAS2R2M50
C 469 520 601 613		CKSQYB103K25
C 470 632		CCSQCH101J50
C 501 502		CEA4R7M16LS2
C 503 504		CCSQCH220J50
C 505 510 542 543 612		CEA2R2M50LS2
C 507 508 509 514 515 518 519 553 554 590		CEA100M16LS2
C 511		CEA470M16LS
C 516 517		CKSQYB822K50
C 521 522		CKSQYB183K25
C 523		CCSQCH221J50
C 524		CCSQSL221J50
C 525 526		CKSQYB152K50
C 527 528 602 607 609 721 722 723 724		CEA010M50LS2
C 529 530		CKSQYF224Z25
C 531 532		CKSQYB332K50
C 533 534		CEALNP2R2M35
C 535 536		CKSQYB333K25
C 539 540		CEA100M16LS2
C 541		CKSYF104Z25
C 552 561 568 569		CEA220M16LS
C 555		CKSQYB273K25
C 556 604 610		CKSQYB473K16
C 557 560		CKSQYB123K50
C 558		CKSQYB682K50
C 570 571 801 802		CKSQYB102K50
C 572 573 576 577		CEALNP4R7M16
C 574 579		CKSQYB682K50
C 575		CKSQYB682K50
C 578		CKSQYB682K50
C 580 581 582 583 584 585 586 587		CKSYB104K25
C 588		CEA100M16LS2
C 591		CEA330M10LS
C 593		CKSQYB102K50
C 594 596 631 634		CEA100M16LS2
C 597		CEA4R7M16LS2
C 598 599		CKSYB102K50
C 605		CCSQCH330J50
C 606	33μF/10V	CCH1128
C 608		CEA470M16LS
C 611		CEAS101M10
C 615		CASAQ4R7M10
C 616		CCSQCH330J50
C 635		CEAS102M16
C 641		CCSQCH101J50
C 642		CEHAQ102M16
C 644		CKSQYB473K25
C 650	3300μF/16V	CCH1130
C 651		CKSQYB102K50

======Circuit Symbol & No.	Part Name======	Part No.
C 701 702		CCSQCH101J50
C 703 704		CEA220M16LS
C 705		CKSQYB102K50
C 706		CKSQYB102K50
C 729		CEV010M50
C 730 731 732		CEA010M50LS2
C 739		CEA330M10LS
C 741 742 743 744		CEA100M16LS2

Unit Number :
Unit Name : Key Board Unit

MISCELLANEOUS

IC 901		PDR001A
IC 902		RS-20
Q 901 902		2SB1132
Q 903		2SC2712
Q 904		DTA114TK
D 901 902 903 904 905 906		MA153-MC
D 907 908 910 911 912 913 914 915		MA151K-MH
D 909		MA3068H
L 901	Inductor	LCTA100K4532
X 901	Ceramic Resonator	CSS1083
S 901 902 903 904	Switch	CSG1041
S 905 906 907 908	Switch	CSG1041
S 909 910 911 912	Switch	CSG1041
S 913 914 915 916	Switch	CSG1041
S 917 918 919 920	Switch	CSG1041
S 921	Switch	CSG1041
IL 901 902 903 904	Lamp 115mA 5V	CEL1294
IL 905 906	Lamp 115mA 5V	CEL1294
IL 907 908 909 910	Lamp 95mA 5V	CEL1299
IL 911 912	Lamp 95mA 5V	CEL1299
LCD901	LCD	CAW1192

RESISTORS

R 901 902 903 904 905 906 907 908 909 910	RS1/10S222J
R 911 912 913 914 915 916 917 918 919 920	RS1/10S471J
R 921	RS1/10S474J
R 922	RS1/10S473J
R 923	RS1/10S472J
R 924	RS1/10S470J
R 926 927 928 929 930	RS1/10S471J
R 931	RS1/10S222J
R 934	RS1/10S222J

CAPACITORS

C 901 904	CKSQYB103K25
C 902 903	CSZSR100M6R3

Unit Number :
Unit Name : Mechanism P.C.Board

S 1 2	Switch(70μ,Load)	CSN1022
EGN 1 2	Photo Reflector	EGN1001
R 1		RD1/4HM271J
R 2		RD1/4HM681J

Miscellaneous Parts List

S 600	Switch(Detach)	CSN-096
HD 1	Head Assy	EXA1163
M 1	Motor Unit(Main)	EXA1278
M 2	Motor Unit(Sub)	EXA1279

- The KEH-M8550/ES and KEH-M8500/US Parts Lists enumerate the parts which differ from those enumerated in the KEH-M780/US Parts List only.
  The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.
  The KEH-M780/US Parts List is given on page 73.

MISCELLANEOUS

Circuit Symbol & No.	KEH-M780/US Part No.	KEH-M8550/ES Part No.	KEH-M8500/US Part No.
IC507	NJM2068MD1	NJM2068MD1	·····
IC508	TC4052BF	TC4052BF	·····
IC509	NJM2068MD1	NJM2068MD1	NJM4558M
Q505	2SD1684	2SD1684	2SD1859
S602	CSH1009	CSH1009	·····
L801	CTH1107	CTH1103	CTH1103
IC702, 703, 704, 705	NJM4558M	NJM4558M	·····
Q703, 704, 705, 706	2SC2712	2SC2712	·····
Q708, 709, 710, 711	2SC2712	2SC2712	·····
L701, 702, 703, 704	LAU2R2M	LAU2R2M	·····

RESISTORS

Circuit Symbol & No.	KEH-M780/US Part No.	KEH-M8550/ES Part No.	KEH-M8500/US Part No.
R515, 516	RS1/10S333J	RS1/10S333J	·····
R529, 530, 531, 532	·····	·····	RS1/10S0R0J
R536	RS1/10S473J	RS1/10S473J	·····
R537−542	RS1/10S104J	RS1/10S104J	·····
R543	RS1/10S105J	RS1/10S105J	·····
R544, 545	RS1/10S103J	RS1/10S103J	·····
R546	·····	·····	RS1/10S0R0J
R547	·····	·····	RS1/10S0R0J
R548, 549	RS1/10S105J	RS1/10S105J	RS1/10S104J
R640	RS1/10S473J	RS1/10S473J	·····
R641	·····	RS1/10S473J	RS1/10S473J
R643	·····	·····	RS1/10S473J
R644	RS1/10S473J	·····	·····
R717	RS1/10S100J	RS1/10S100J	·····
R721, 722, 723, 724	RS1/10S104J	RS1/10S104J	·····
R725−732	RS1/10S471J	RS1/10S471J	·····
R733, 734, 735, 736	RS1/10S154J	RS1/10S154J	·····
R737, 738, 739, 740	RS1/10S334J	RS1/10S334J	·····
R749, 750, 751, 752	RS1/10S123J	RS1/10S123J	·····
R753, 754, 755, 756	RS1/10S103J	RS1/10S103J	·····
R758, 770, 782, 786	RS1/10S123J	RS1/10S123J	·····
R759, 771, 783, 787	RS1/10S562J	RS1/10S562J	·····
R760, 772	RS1/10S331J	RS1/10S331J	·····
R769, 773	RS1/10S331J	RS1/10S331J	·····
R774, 775, 776, 777	CCN1072	CCN1072	·····
R781, 784, 785, 788	RS1/10S331J	RS1/10S331J	·····

======Circuit Symbol & No.	Part Name======	Part No.
R 805 806		RS1/10S273J
R 856		RS1/10S102J
R 861		RS1/10S473J
R 873		RS1/10S102J
R 880 881 882 883		RS1/10S101J
R 885		RS1/10S0R0J
R 886		RS1/10S472J
CAPACITORS		
C 421 422		CEAS4R7M35
C 451 452		CCSQCH270J50
C 453 471 537 538 566 567 614 633 636 640		CCSQCH101J50
C 454 592 603		CEA4R7M16LS2
C 455 458 461 506 643 717 718 719 720		CKSQYB103K25
C 457	4.7 μF/16V	CCH1005
C 459	Chip Capacitor 0.047μF	CCG1008
C 460		CFTNA474J50
C 462		CCSQSL561J50
C 463 464 559 855		CKSQYB223K25
C 465		CCSQCH101J50
C 467 468		CEAS2R2M50
C 469 520 601 613		CKSQYB103K25
C 470 632		CCSQCH101J50
C 501 502		CEA4R7M16LS2
C 503 504		CCSQCH220J50
C 505 510 542 543 612		CEA2R2M50LS2
C 507 508 509 514 515 518 519 553 554 590		CEA100M16LS2
C 511		CEA470M16LS
C 516 517		CKSQYB822K50
C 521 522		CKSQYB183K25
C 523		CCSQCH221J50
C 524		CCSQSL221J50
C 525 526		CKSQYB152K50
C 527 528 602 607 609 721 722 723 724		CEA010M50LS2
C 529 530		CKSQYF224Z25
C 531 532		CKSQYB332K50
C 533 534		CEALNP2R2M35
C 535 536		CKSQYB333K25
C 539 540		CEA100M16LS2
C 541		CKSYF104Z25
C 552 561 568 569		CEA220M16LS
C 555		CKSQYB273K25
C 556 604 610		CKSQYB473K16
C 557 560		CKSQYB123K50
C 558		CKSQYB682K50
C 570 571 801 802		CKSQYB102K50
C 572 573 576 577		CEALNP4R7M16
C 574 579		CKSQYB682K50
C 575		CKSQYB682K50
C 578		CKSQYB682K50
C 580 581 582 583 584 585 586 587		CKSYB104K25
C 588		CEA100M16LS2
C 591		CEA330M10LS
C 593		CKSQYB102K50
C 594 596 631 634		CEA100M16LS2
C 597		CEA4R7M16LS2
C 598 599		CKSYB102K50
C 605		CCSQCH330J50
C 606	33 μF/10V	CCH1128
C 608		CEA470M16LS
C 611		CEAS101M10
C 615		CASAQ4R7M10
C 616		CCSQCH330J50
C 635		CEAS102M16
C 641		CCSQCH101J50
C 642		CEHAQ102M16
C 644		CKSQYB473K25
C 650	3300 μF/16V	CCH1130
C 651		CKSQYB102K50

======Circuit Symbol & No.	Part Name======	Part No.
C 701 702		CCSQCH101J50
C 703 704		CEA220M16LS
C 705		CKSQYB102K50
C 706		CKSQYB102K50
C 729		CEV010M50
C 730 731 732		CEA010M50LS2
C 739		CEA330M10LS
C 741 742 743 744		CEA100M16LS2

Unit Number :
Unit Name : Key Board Unit

MISCELLANEOUS

IC 901		PDR001A
IC 902		RS-20
Q 901 902		2SB1132
Q 903		2SC2712
Q 904		DTA114TK
D 901 902 903 904 905 906		MA153-MC
D 907 908 910 911 912 913 914 915		MA151K-MH
D 909		MA3068H
L 901	Inductor	LCTA100K4532
X 901	Ceramic Resonator	CSS1083
S 901 902 903 904	Switch	CSG1041
S 905 906 907 908	Switch	CSG1041
S 909 910 911 912	Switch	CSG1041
S 913 914 915 916	Switch	CSG1041
S 917 918 919 920	Switch	CSG1041
S 921	Switch	CSG1041
IL 901 902 903 904	Lamp 115mA 5V	CEL1294
IL 905 906	Lamp 115mA 5V	CEL1294
IL 907 908 909 910	Lamp 95mA 5V	CEL1299
IL 911 912	Lamp 95mA 5V	CEL1299
LCD901	LCD	CAW1192

RESISTORS

R 901 902 903 904 905 906 907 908 909 910	RS1/10S222J
R 911 912 913 914 915 916 917 918 919 920	RS1/10S471J
R 921	RS1/10S474J
R 922	RS1/10S473J
R 923	RS1/10S472J
R 924	RS1/10S470J
R 926 927 928 929 930	RS1/10S471J
R 931	RS1/10S222J
R 934	RS1/10S222J

CAPACITORS

C 901 904	CKSQYB103K25
C 902 903	CSZSR100M6R3

Unit Number :
Unit Name : Mechanism P.C.Board

S 1 2	Switch(70 μ,Load)	CSN1022
EGN 1 2	Photo Reflector	EGN1001
R 1		RD1/4HM271J
R 2		RD1/4HM681J

Miscellaneous Parts List

S 600	Switch(Detach)	CSN-096
HD 1	Head Assy	EXA1163
M 1	Motor Unit(Main)	EXA1278
M 2	Motor Unit(Sub)	EXA1279

- The KEH-M8550/ES and KEH-M8500/US Parts Lists enumerate the parts which differ from those enumerated in the KEH-M780/US Parts List only.
  The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.
  The KEH-M780/US Parts List is given on page 73.

MISCELLANEOUS

Circuit Symbol & No.	KEH-M780/US Part No.	KEH-M8550/ES Part No.	KEH-M8500/US Part No.
IC507	NJM2068MD1	NJM2068MD1	·····
IC508	TC4052BF	TC4052BF	·····
IC509	NJM2068MD1	NJM2068MD1	NJM4558M
Q505	2SD1684	2SD1684	2SD1859
S602	CSH1009	CSH1009	·····
L801	CTH1107	CTH1103	CTH1103
IC702, 703, 704, 705	NJM4558M	NJM4558M	·····
Q703, 704, 705, 706	2SC2712	2SC2712	·····
Q708, 709, 710, 711	2SC2712	2SC2712	·····
L701, 702, 703, 704	LAU2R2M	LAU2R2M	·····

RESISTORS

Circuit Symbol & No.	KEH-M780/US Part No.	KEH-M8550/ES Part No.	KEH-M8500/US Part No.
R515, 516	RS1/10S333J	RS1/10S333J	·····
R529, 530, 531, 532	·····	·····	RS1/10S0R0J
R536	RS1/10S473J	RS1/10S473J	·····
R537−542	RS1/10S104J	RS1/10S104J	·····
R543	RS1/10S105J	RS1/10S105J	·····
R544, 545	RS1/10S103J	RS1/10S103J	·····
R546	·····	·····	RS1/10S0R0J
R547	·····	·····	RS1/10S0R0J
R548, 549	RS1/10S105J	RS1/10S105J	RS1/10S104J
R640	RS1/10S473J	RS1/10S473J	·····
R641	·····	RS1/10S473J	RS1/10S473J
R643	·····	·····	RS1/10S473J
R644	RS1/10S473J	·····	·····
R717	RS1/10S100J	RS1/10S100J	·····
R721, 722, 723, 724	RS1/10S104J	RS1/10S104J	·····
R725−732	RS1/10S471J	RS1/10S471J	·····
R733, 734, 735, 736	RS1/10S154J	RS1/10S154J	·····
R737, 738, 739, 740	RS1/10S334J	RS1/10S334J	·····
R749, 750, 751, 752	RS1/10S123J	RS1/10S123J	·····
R753, 754, 755, 756	RS1/10S103J	RS1/10S103J	·····
R758, 770, 782, 786	RS1/10S123J	RS1/10S123J	·····
R759, 771, 783, 787	RS1/10S562J	RS1/10S562J	·····
R760, 772	RS1/10S331J	RS1/10S331J	·····
R769, 773	RS1/10S331J	RS1/10S331J	·····
R774, 775, 776, 777	CCN1072	CCN1072	·····
R781, 784, 785, 788	RS1/10S331J	RS1/10S331J	·····

======Circuit Symbol & No.	Part Name======	Part No.
R 805 806		RS1/10S273J
R 856		RS1/10S102J
R 861		RS1/10S473J
R 873		RS1/10S102J
R 880 881 882 883		RS1/10S101J
R 885		RS1/10S0R0J
R 886		RS1/10S472J
CAPACITORS		
C 421 422		CEAS4R7M35
C 451 452		CCSQCH270J50
C 453 471 537 538 566 567 614 633 636 640		CCSQCH101J50
C 454 592 603		CEA4R7M16LS2
C 455 458 461 506 643 717 718 719 720		CKSQYB103K25
C 457	4.7 μF/16V	CCH1005
C 459	Chip Capacitor 0.047μF	CCG1008
C 460		CFTNA474J50
C 462		CCSQSL561J50
C 463 464 559 855		CKSQYB223K25
C 465		CCSQCH101J50
C 467 468		CEAS2R2M50
C 469 520 601 613		CKSQYB103K25
C 470 632		CCSQCH101J50
C 501 502		CEA4R7M16LS2
C 503 504		CCSQCH220J50
C 505 510 542 543 612		CEA2R2M50LS2
C 507 508 509 514 515 518 519 553 554 590		CEA100M16LS2
C 511		CEA470M16LS
C 516 517		CKSQYB822K50
C 521 522		CKSQYB183K25
C 523		CCSQCH221J50
C 524		CCSQSL221J50
C 525 526		CKSQYB152K50
C 527 528 602 607 609 721 722 723 724		CEA010M50LS2
C 529 530		CKSQYF224Z25
C 531 532		CKSQYB332K50
C 533 534		CEALNP2R2M35
C 535 536		CKSQYB333K25
C 539 540		CEA100M16LS2
C 541		CKSYF104Z25
C 552 561 568 569		CEA220M16LS
C 555		CKSQYB273K25
C 556 604 610		CKSQYB473K16
C 557 560		CKSQYB123K50
C 558		CKSQYB682K50
C 570 571 801 802		CKSQYB102K50
C 572 573 576 577		CEALNP4R7M16
C 574 579		CKSQYB682K50
C 575		CKSQYB682K50
C 578		CKSQYB682K50
C 580 581 582 583 584 585 586 587		CKSYB104K25
C 588		CEA100M16LS2
C 591		CEA330M10LS
C 593		CKSQYB102K50
C 594 596 631 634		CEA100M16LS2
C 597		CEA4R7M16LS2
C 598 599		CKSYB102K50
C 605		CCSQCH330J50
C 606	33 μF/10V	CCH1128
C 608		CEA470M16LS
C 611		CEAS101M10
C 615		CASAQ4R7M10
C 616		CCSQCH330J50
C 635		CEAS102M16
C 641		CCSQCH101J50
C 642		CEHAQ102M16
C 644		CKSQYB473K25
C 650	3300 μF/16V	CCH1130
C 651		CKSQYB102K50

======Circuit Symbol & No.	Part Name======	Part No.
C 701 702		CCSQCH101J50
C 703 704		CEA220M16LS
C 705		CKSQYB102K50
C 706		CKSQYB102K50
C 729		CEV010M50
C 730 731 732		CEA010M50LS2
C 739		CEA330M10LS
C 741 742 743 744		CEA100M16LS2

Unit Number :
Unit Name : Key Board Unit

MISCELLANEOUS

IC 901		PDR001A
IC 902		RS-20
Q 901 902		2SB1132
Q 903		2SC2712
Q 904		DTA114TK
D 901 902 903 904 905 906		MA153-MC
D 907 908 910 911 912 913 914 915		MA151K-MH
D 909		MA3068H
L 901	Inductor	LCTA100K4532
X 901	Ceramic Resonator	CSS1083
S 901 902 903 904	Switch	CSG1041
S 905 906 907 908	Switch	CSG1041
S 909 910 911 912	Switch	CSG1041
S 913 914 915 916	Switch	CSG1041
S 917 918 919 920	Switch	CSG1041
S 921	Switch	CSG1041
IL 901 902 903 904	Lamp 115mA 5V	CEL1294
IL 905 906	Lamp 115mA 5V	CEL1294
IL 907 908 909 910	Lamp 95mA 5V	CEL1299
IL 911 912	Lamp 95mA 5V	CEL1299
LCD901	LCD	CAW1192

RESISTORS

R 901 902 903 904 905 906 907 908 909 910	RS1/10S222J
R 911 912 913 914 915 916 917 918 919 920	RS1/10S471J
R 921	RS1/10S474J
R 922	RS1/10S473J
R 923	RS1/10S472J
R 924	RS1/10S470J
R 926 927 928 929 930	RS1/10S471J
R 931	RS1/10S222J
R 934	RS1/10S222J

CAPACITORS

C 901 904	CKSQYB103K25
C 902 903	CSZSR100M6R3

Unit Number :
Unit Name : Mechanism P.C.Board

S 1 2	Switch(70 μ,Load)		CSN1022
EGN 1 2	Photo Reflector		EGN1001
R 1			RD1/4HM271J
R 2			RD1/4HM681J

Miscellaneous Parts List

S 600	Switch(Detach)	CSN-096
HD 1	Head Assy	EXA1163
M 1	Motor Unit(Main)	EXA1278
M 2	Motor Unit(Sub)	EXA1279

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MISCELLANEOUS

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IC508	TC4052BF	TC4052BF	·····
IC509	NJM2068MD1	NJM2068MD1	NJM4558M
Q505	2SD1684	2SD1684	2SD1859
S602	CSH1009	CSH1009	·····
L801	CTH1107	CTH1103	CTH1103
IC702, 703, 704, 705	NJM4558M	NJM4558M	·····
Q703, 704, 705, 706	2SC2712	2SC2712	·····
Q708, 709, 710, 711	2SC2712	2SC2712	·····
L701, 702, 703, 704	LAU2R2M	LAU2R2M	·····

RESISTORS

Circuit Symbol & No.	KEH-M780/US Part No.	KEH-M8550/ES Part No.	KEH-M8500/US Part No.
R515, 516	RS1/10S333J	RS1/10S333J	·····
R529, 530, 531, 532	·····	·····	RS1/10S0R0J
R536	RS1/10S473J	RS1/10S473J	·····
R537−542	RS1/10S104J	RS1/10S104J	·····
R543	RS1/10S105J	RS1/10S105J	·····
R544, 545	RS1/10S103J	RS1/10S103J	·····
R546	·····	·····	RS1/10S0R0J
R547	·····	·····	RS1/10S0R0J
R548, 549	RS1/10S105J	RS1/10S105J	RS1/10S104J
R640	RS1/10S473J	RS1/10S473J	·····
R641	·····	RS1/10S473J	RS1/10S473J
R643	·····	·····	RS1/10S473J
R644	RS1/10S473J	·····	·····
R717	RS1/10S100J	RS1/10S100J	·····
R721, 722, 723, 724	RS1/10S104J	RS1/10S104J	·····
R725−732	RS1/10S471J	RS1/10S471J	·····
R733, 734, 735, 736	RS1/10S154J	RS1/10S154J	·····
R737, 738, 739, 740	RS1/10S334J	RS1/10S334J	·····
R749, 750, 751, 752	RS1/10S123J	RS1/10S123J	·····
R753, 754, 755, 756	RS1/10S103J	RS1/10S103J	·····
R758, 770, 782, 786	RS1/10S123J	RS1/10S123J	·····
R759, 771, 783, 787	RS1/10S562J	RS1/10S562J	·····
R760, 772	RS1/10S331J	RS1/10S331J	·····
R769, 773	RS1/10S331J	RS1/10S331J	·····
R774, 775, 776, 777	CCN1072	CCN1072	·····
R781, 784, 785, 788	RS1/10S331J	RS1/10S331J	·····

CAPACITORS

Circuit Symbol & No.	KEH-M780/US Part No.	KEH-M8550/ES Part No.	KEH-M8500/US Part No.
C553, 554	CEA100M16LS2	CEA100M16LS2	CEA2R2M50LS2
C555	CKSQYB273K25	CKSQYB273K25	·····
C556	CKSQYB473K16	CKSQYB473K16	·····
C557, 560	CKSQYB123K50	CKSQYB123K50	·····
C558	CKSQYB682K50	CKSQYB682K50	·····
C559	CKSQYB223K25	CKSQYB223K25	·····
C593	CKSQYB102K50	CKSQYB102K50	·····
C717, 718, 719, 720	CKSQYB103K25	CKSQYB103K25	·····
C721, 722, 723, 724	CEA010M50LS2	CEA010M50LS2	·····
C729	CEV010M50	CEV010M50	·····
C730, 731, 732	CEA010M50LS2	CEA010M50LS2	·····
C739	CEA330M10LS	CEA330M10LS	·····
C741, 742, 743, 744	CEA100M16LS2	CEA100M16LS2	·····